THE BUILDER

NEW YEAR'S DOUBLE NUMBER

JAN. 13, 1928 No. 4432

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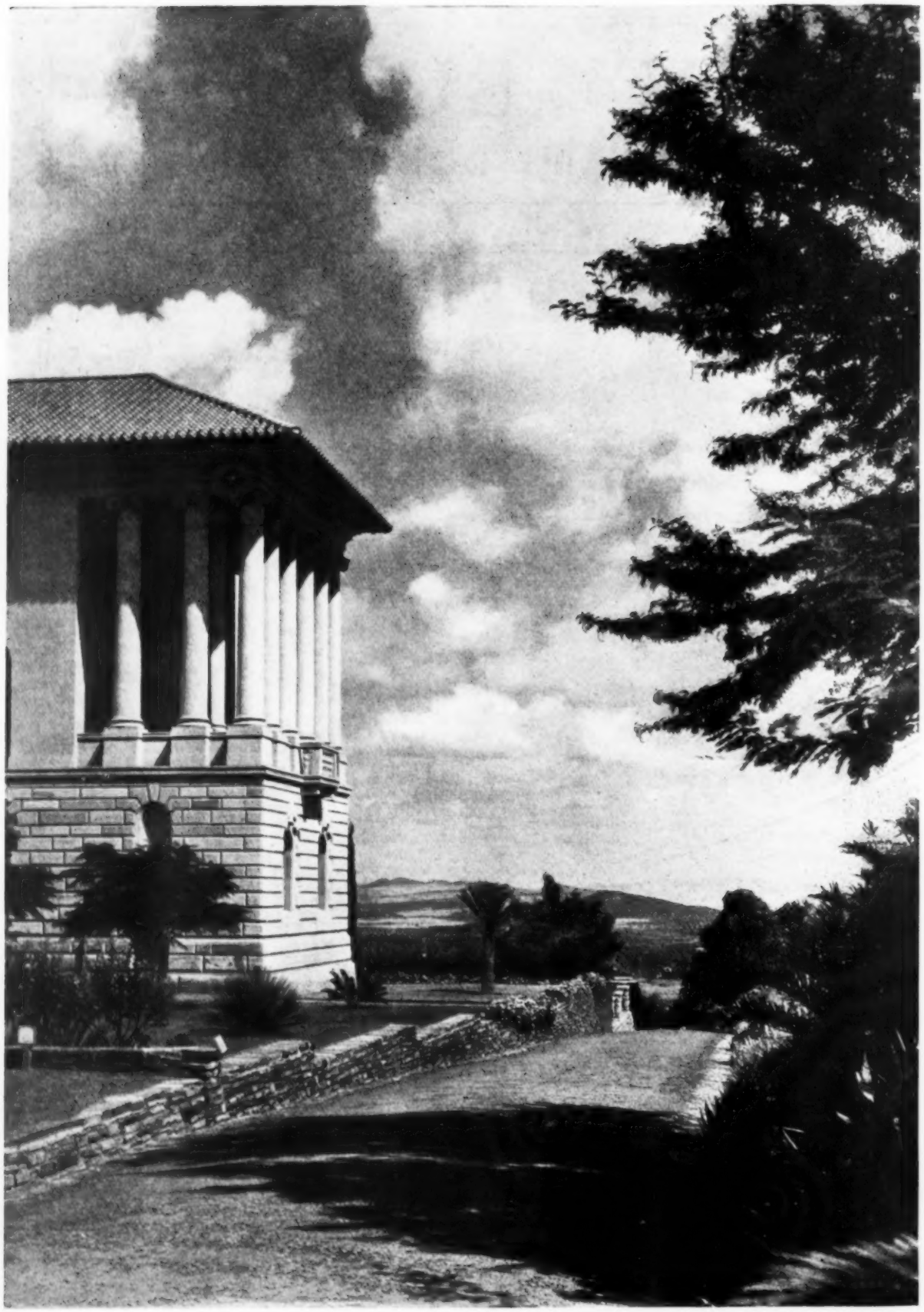
86TH YEAR



Government Offices, Pretoria: An End Pavilion.

SIR HERBERT BAKER, A.R.A., Architect.

THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXXIV. No. 4432. JANUARY 13, 1928.

1928

ANY attempt to deal with architecture over a period of twelve months may appear at first sight to be a task similar to that of the chairman of a limited liability company. It is fairly easy to record details of progress, or the reverse, but it is extremely difficult to submit accurate generalisations upon fundamental issues, where the information is gathered over a short period. Similarly, it is even more difficult to predict the conditions of the future.

During the past ten years the art of building has perceptibly altered its social and economic structure. It is still bound up with the prosperity of a country—a platitude that seems to be more acceptable than the plain statement that building activity is an index of good trade. On its domestic side, however, architecture has to some extent broken away from the elementary economic law that it is our personal responsibility either to build or to rent a house. That burden has been removed, leaving us—some of us at least—free to spend in other directions. For years to come it will be a debatable point whether the Government in subsidising one commodity has not been supporting other industries. Obviously there must always be a need for houses, but the future holds the secret whether the obligation will fall upon us as individuals or upon the nation. From the social standpoint it is essential that we should be housed decently; from the moral standpoint it is equally essential that we should not be encouraged to avoid responsibilities. In our post-war social structure we have not yet begun to define our responsibilities. Common fairness compels us to take into account the post-war shortage of houses, shortage of labour and high building costs. Nevertheless, making allowances for these we do no more than speculate upon the responsibility of the individual and the future of architecture when these artificial conditions no longer obtain. It has been hinted in political circles that the responsibility of providing a house is one that should be shouldered permanently by the State. In this event—and we are gradually eliminating artificial conditions of house building—architects can work out for themselves the problematical trend of the future, so far as they are personally concerned. We sincerely hope that domestic architecture will not find its level in the ugly word housing that seems to express a municipal necessity like gas, water and sanitation.

In the region of economics—also an ugly word to many—we have to record that we are still struggling with an industrial depression. Causes and effects have long since sunk in the welter of Party politics. At times there appears the faint suspicion that the nation, by its own efforts, will struggle back to normal trading conditions; at other times we see the whole problem thrown back upon the Government. To put it otherwise, we see industry placing its responsibilities upon the people. This habit is to a large extent a post-war inheritance, and our problem is whether the habit will continue in the future. We hold that it is a cardinal error to believe that any Government can influence the fundamental conditions that govern our various industries. We also hold that it is wrong to encourage a belief that the cause of our industrial disease can be cured by artificial methods. At the back of the whole problem there remains the question of the amount that a man must produce in relation to his wage and the prosperity of his industry. This problem has not been explored sufficiently; it has either been avoided or resisted. As we write, there again appears a glimmer of hope in the effort being made to bring together masters and men, not under these names, but as colleagues working for the same ends. The industrial problem is theirs alone, and it is in their power to settle it without the help of politicians or legislation.

The domestic affairs of the architectural profession have come into the limelight during the past year in connection with the discussion upon the Bill in Parliament for the Registration of Architects. Some curious issues have emerged, and no doubt many of them will be adjusted in the future. We still maintain that the future of architecture and architects will receive a beneficial influence from some form of official recognition. A privileged profession may be no different in principle from a trade union, and a trade union may have nothing to do with art. All these arguments have been advanced and thoroughly ventilated. We can afford to pass over the philosophy that postulates architecture, in the argument, as an art; we would merely point out the number of societies that have been founded in recent years to meet the widespread agitation against the spoliation of the countryside by every conceivable kind of erection coming under the general heading of building. There is an end to begin at, whether it is at the top or the bottom, and our experience with every other social evil is that prevention begins at the bottom. To our thinking the registration of architects will have its effect in this way, while leaving plenty of room at the top. Meantime, we subscribe to preserve our old buildings and the countryside from destruction rather than place restrictions upon the output of the vandals.

These few headings seem to us to embrace the main lines that will influence the architecture of the future. Two of them deal with decisions affecting our social and economic structure; the other is, in essence, a domestic affair. All of them involve decisions upon which opposite opinions are strongly held, and all of them may be said to hold the secret of the civilisation of which architecture is a reflex. It is given to none to see the solution correctly, even in matters that may involve the simple issues of right or wrong. In face of a civilisation in a state of flux we share the belief that good architecture should be a reflex of the good state. We have no fears concerning the standard of architecture revealed during the past year; it is full of vigour and promise. Rather are we concerned at this time about the sources that supply the life-blood of a nation desirous of expressing itself in great architecture. Our hopes for 1928, therefore, may not be, unfortunately, another man's hopes; nevertheless many of the signs, as we see them, are hopeful.

We do not like to end on a didactic note, but we cannot refrain from expressing a hope that in the coming year many of our social problems will be examined in a broader spirit. Every social reformer has his own little theory within his own limited range, just as every baby in Utopia Limited had its own ickle prospectus. Through our building activities we have become instruments of deformity and outrage. In fleeing for protection to preserved areas of country, we acquiesce in our atrocities as if it were ugliness that were inevitable. In our attempts to humanise the conditions of life for the masses of the people we have the facile social reformer proclaiming that "the only real way with the slums is to move them right out into the country, with the work on which the people live with them. Then you'll get decent towns." This bleak philosophy must be read with charity, but it leaves us cold. The motive underneath the emotional appeal is honest, but the understanding is limited and the outlook narrow. If it is true that the worst offences against taste are those which are committed with the best intentions, we would like to see the architectural profession taking a greater responsibility in the future in the guidance of our social problems. Some controlling idea of propriety and decency is necessary to check the reformer who thinks in patches.

HOUSING AND THE SUBSIDY

As from September 30, 1927, a reduction of the subsidies granted under the Housing Acts 1923 and 1924, for the purpose of facilitating the production of housing accommodation for the people, has taken place to the extent of, for the Act of 1923, £2 per house per annum for 20 years, and for the Act of 1924, £1 10s. per annum per house for 40 years.

Subsidies were instituted for the purpose of temporarily stimulating or inflating the production of houses. Their reduction and their ultimate removal constitutes an act of deflation entailing certain alterations of price level. The following observations are intended to give some indication of the consequences which may be expected to ensue. For the year ending December 31, 1922, the last complete year prior to the Act of 1923 coming into force, the total number of houses completed was 89,000. For the year ending September 30, 1927, when the change of the rate of subsidy took place, the number of houses completed under the Act of 1923 was 115,073, and under the Act of 1924, 97,316, to which should be added the 65,689 built without any State assistance or subsidy, giving a grand total of 278,078 houses, being the highest number ever recorded in this country, and 2¾ times as many as the highest number produced in any one pre-war year.

The reason for the smaller number of houses produced under the 1924 Act, which was intended to facilitate the production of houses for letting purposes, is that it is not so attractive a proposition as the 1923 Act from the point of view of those concerned with the production of houses by private enterprise. By April of last year it had become apparent that the houses already in hand, or included in contracts then let, were unlikely all to be completed in time to receive subsidy at the old rate, and there was, in consequence, a considerable slackening of activity. The statistical returns show that the number of houses included in arrangements made during the seven months April to October, 1927, was only 59,602, as against 106,105 for the corresponding period for 1926. It is thought, however, that the total of completed houses for the year ending September 30, 1928, will still be somewhere about 200,000.

It is evident, therefore, that the immediate effect of reducing the subsidy has been to diminish the production of houses, and the question arises as to whether such a curtailment of production will prove to be merely temporary or otherwise.

The extraordinary stimulation of house production which has taken place was justified at its inception by the insistent demand for more housing accommodation for the people, a demand which, in the circumstances, was not being met owing to the reluctance of private enterprise to embark upon capital investment upon an inflated basis of cost, combined with a restricted rate of return upon the capital so invested.

To a modified extent all those factors still continue to operate, but in so far as the demand has been met there is now less need for the stimulation of production, and in so far as cost of production and rent restriction have been diminished, there is a smaller handicap upon the return which can accrue to capital invested in housing. It is to be presumed that the Ministry of Health, in deciding upon a reduction in the stimulation of housing production, were satisfied that the demand for houses had been so far met as to justify such reduction. It may be that a reduced production for the future is anticipated as a permanent rather than a temporary feature, or it may be thought that after a pause for readjustment, production will be resumed on a sufficiently ample scale for all practical purposes. Time alone will show which of these anticipations will be realised.

Assuming that the production of subsidy houses for the year ending September 30, 1928, does not exceed 140,000, as it is thought may prove to be the case, that would diminish the number of workers employed on housing by about 85,000 men and, unless reduced cost has the effect of increasing demand for ordinary commercial and other non-subsidised building, cause practically double the unemployment in the building industry. The average percentage of unemployment for England and Wales is already 11.3 per cent. (October 86,030 men). Scotland is not affected to the like degree owing to the housing demand not having been overtaken to the same extent as in England and Wales; nevertheless, there is even now a scarcity of men in some skilled trades in some localities, and the present extent of unemployment includes that due to expected seasonal conditions.

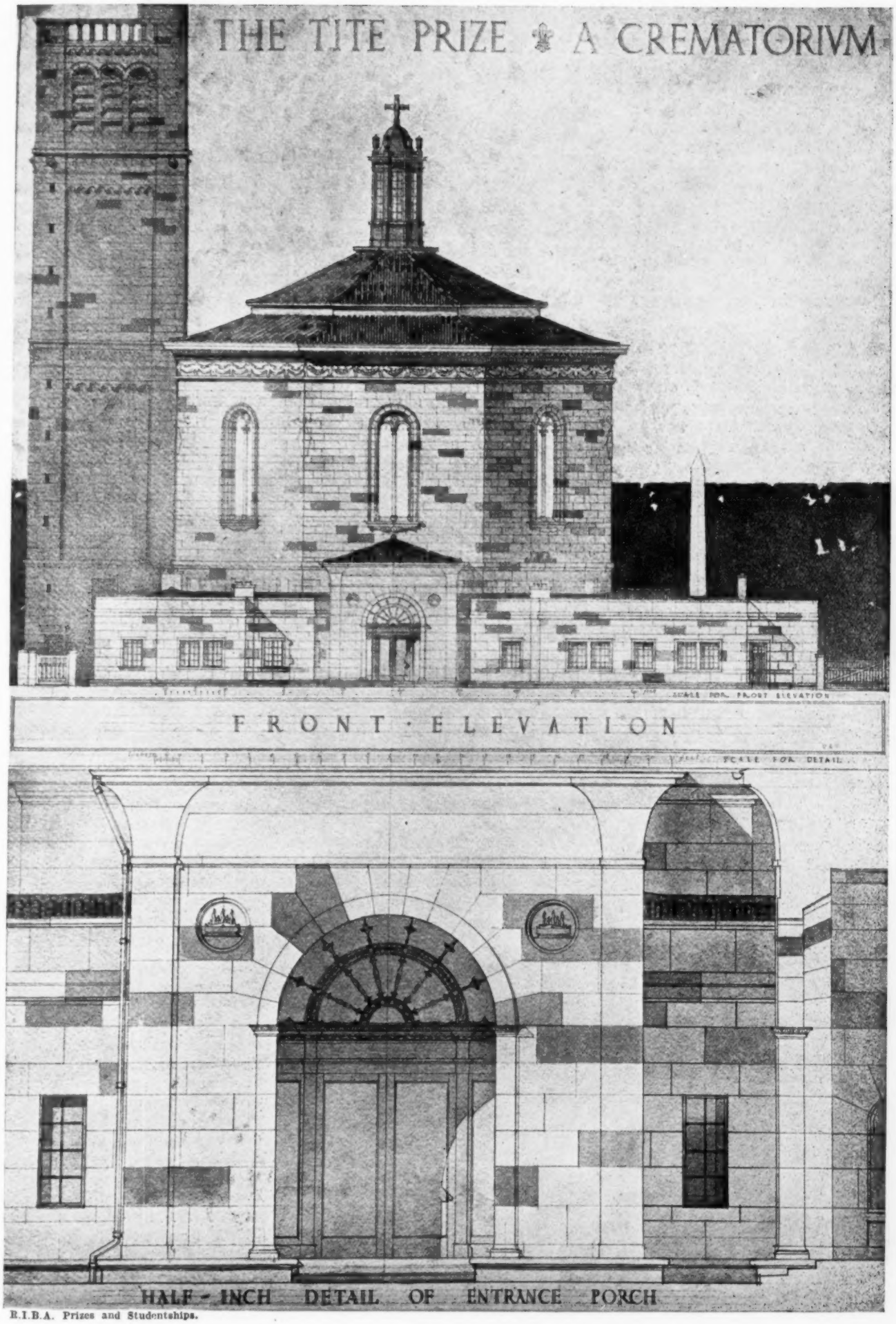
The value at current prices of the materials required in the construction of these 70,000 houses, by which it is assumed that this next year's production will fall short of last year's, would be approximately £14,000,000, and unless other sources of demand arise, the call for building materials will be diminished accordingly. The result, presumably, may be reflected in a decline in prices until equilibrium is once more established between supply and demand and the volume of production has undergone its appropriate adjustment.

Such a process takes time to bring about, and it may well be that it will barely be accomplished by September next, when a further revision of the amount of the subsidy is due. If the Ministry of Health should then decide that a further reduction in the subsidy similar in amount to the late reduction should be made, the process of readjustment of demand and supply which is presently in progress will be repeated, and the like phenomenon would recur if the last instalment of the subsidy comes off in September, 1929 or 1930.

A question naturally arises as to whether it will be better for the interests of all concerned to remove the remainder of the subsidy by a series of steps, or whether it would be best to take off the balance thereof at one step in 1928. The question is perhaps not easy to answer. It may be admitted that the sooner the building industry is freed from the artificial conditions under which it has been working the better; the future provision of houses for the people being left to the operation of supply and demand. On the other hand, the process of deflating prices is likely, for a little time, to bear hardly upon employers and workmen, both in the building industry and in those manufacturing industries which supply materials for housing construction. It has, however, to be faced sooner or later, and would perhaps be best met and disposed of once for all.

It may be that the Ministry of Health will consider it advisable to confer with the interested parties early in the year with a view of deciding how best to carry out future reductions of the subsidy without imposing unnecessary hardship and inconvenience upon the industries which, at the suggestion of the Government of the day and upon an understanding that a lengthy programme of housing construction was in contemplation, very substantially augmented their productive capacities. For instance, if local authorities should now divert their activities from the production of housing schemes on vacant sites to the demolition of slum areas, where such exist, and their reconstruction on modern lines, there would necessarily arise an amount of constructioual work which might ease to a material extent the transition from subsidy to no subsidy.

There is no marked indication at present of any stimulus of demand other than for house building, and as during recent years housing formed something like 68 per cent. of the whole building constructional activity of the country, the industry may be faced with a decline of activity in the immediate future, although with a sufficiently low level of prices reached there would no doubt be a revival of demand.



R.I.B.A. Prizes and Studentships.

The Tite Prize. "A Crematorium": Winning Design.

By MR. PATRICK MCNEIL, A.R.I.B.A.

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NOTES

Our Wish.

IN wishing our readers A Happy New Year, we sink our pedantry and flout the philosophers in adding that we hope it will be Prosperous. It is a commonplace of the moralists "that in so far as any man is happy, he owes most of his happiness to something in himself than to prosperous external circumstances." We are continually being told that we fall into the common error of confusing prosperity with happiness, and happiness with pleasure. "A man must work for his happiness as some men toil after virtue." Having written this we are free to repeat our New Year's wish.

1928.

THOUGH the divisions of time into months and years are but a scientific arrangement and one of convenience, there is none the less a feeling that the opening of each new year has something of the nature of the dawn in it. When, in the half light of the early morning we look out, it is as though creation begins again. And so when we look out on a new year, something of this same virginal feeling possesses us. Time and its two eternities, behind and before us, stand out with a deepened significance, and we ask ourselves the meaning of it all, and our relationship to it. Is it best interpreted in lowering our heads to the sway of circumstances governed by economic necessity, and seeking security only, or is it some grand adventure which inspires us? We do not find the circumstances in which we live, we create them, and whichever view we take of life, we shall assuredly experience one or the other. There can be but one answer where art is concerned, for architecture and the arts rest on the belief in the rightness and beauty of things which they interpret for us—and it is in this sense that the poet speaks when he tells us that "beauty precedes" freedom. Architecture and the arts cannot surrender to any lower view; they may set out to seek good fortune, but are safer in being themselves good fortune—and the new epoch now opening must rest not on doubt, but affirmation. As was said by Michael Angelo, if we think we shall fail, we are on the high road to failure. Doubting voices are raised to-day. May the influence of architecture and the arts in this dawning year be directed in quietness and confidence to the strengthening of the convictions on which all that is lasting and beautiful in the world for ever rests.

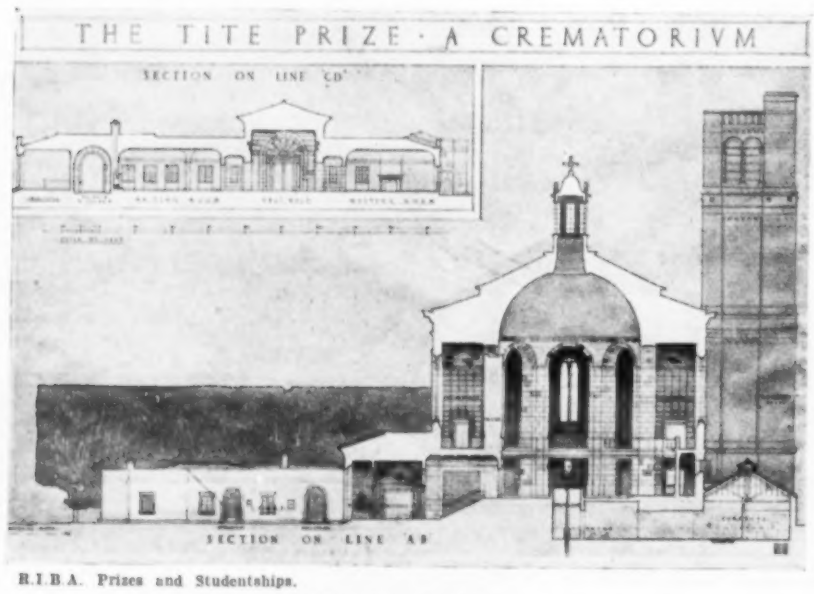
Points of View.

AT this season of the year our literary efforts range from excursions in social stocktaking to dissertations on the architect's craft. They appeal to different types of minds—a misfortune, perhaps, in a humanistic art such as the art of building. To our thinking, it seems invidious to point out that one point of view is more valuable than the other. Neither of them is regarded as being in a water-tight compartment, and it is merely a question of whether both points of view have been made equally interesting. Only the other day Sir Josiah Stamp remarked that the first thing he said to a student of economics was: "Have you ever had a headache on this particular point? If you have not, you have not begun to understand it." We sincerely hope we have spared our readers this penalty, even if we can hardly claim that we have suggested ideas that set the lazy reader off on a delightful excursion of fancy. We have a desire to make people think rather than to tell them what to think. To start a train of thought is perhaps the essayist's first duty, but the masters of the essay can be counted on the fingers of one hand. Moreover, in our endeavours to serve the arts of building, we are compelled at times to employ an attitude definitely didactic.

R.I.B.A. Prizes and Studentships.

Winning Design.

By MR. PATRICK MCNEIL, A.R.I.B.A.



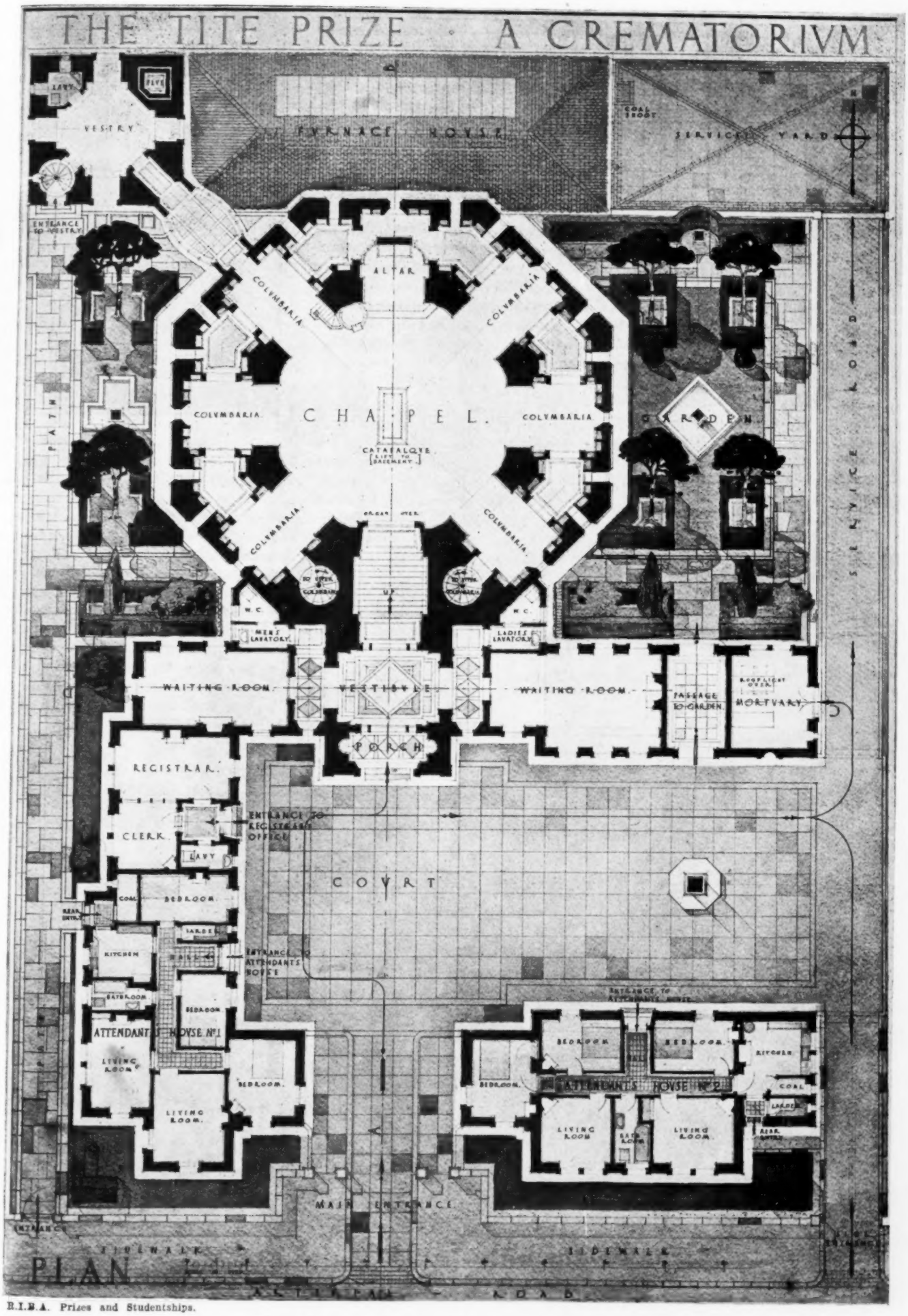
R.I.B.A. Prizes and Studentships.

Winning Design.

By MR. PATRICK MCNEIL, A.R.I.B.A.

Our Lost Traditions of Building.

MR. ROBERT LYND, in one of his essays in "The Blue Lion," has a delightful passage that makes us realise the difference between instinct and our lost traditions of building in a simple and unassuming manner. "There is nothing," he says, "in which the birds differ more from man than the way in which they can build, yet leave a landscape as it was before. Let a thousand men set up their houses in a wood, and the wood becomes a hideous small town. Let a thousand birds settle in the same wood, and it will take a skilled eye to find twenty of them, save for the black patches made by the rooks in the elms. Had man but this power of building out of sight, how delightful a piece of nature would be the home counties of England! But man is a violater of fields, a pillager of forests; and his houses, instead of allowing the



R.I.B.A. Prizes and Studentships.

The Tite Prize. "A Crematorium": Winning Design.

By MR. PATRICK MCNEIL, A.R.I.B.A.

eye to slip past them, almost unconsciously, and rest in green prospects, bids the eye 'Halt,' and make all else invisible. How kind are the birds in comparison." Think what a paradise this would be for motorists. And yet it is modern road transport, coupled with zealous social reformers, that have made us suffer so terribly. Let us complete the analogy. We have instituted bird sanctuaries, and now we are instituting sanctuaries to protect us from the houses built by man.

The Shakespeare Theatre.

MISS ELISABETH SCOTT'S success in this competition has excited unusual public attention. This, no doubt, is partly due to an increasing interest in architecture and partly to the novelty of seeing a woman "beating the men" in fair fight in a new field of activity. If the winning design had been on lines with which the public has long been familiar probably this would have aroused merely a nine days' wonder. But Miss Scott's design represents a challenge, and her success is a victory for modernism. Like all new and vital departures it will not be universally appreciated, but we must hope that it will interest the public sufficiently to stimulate a little much needed self-examination and a re-adjustment of cut and dried acceptances.

The Assessors' Award.

THE assessors, realising the importance of mature thought for such a project, suggest that at least twelve months should be allowed to the architect for the study of theatre design and for consideration of the scheme in all its bearings. They further propose that the Governors should employ an independent expert in theatrical equipment to act as a technical adviser to the architect. These are excellent proposals, and we might add the suggestion of a course of Shakespeare himself at "The Old Vic." Perhaps the most important of all considerations should be to leave the architect, once chosen, the utmost possible freedom.

Publication of the Design.

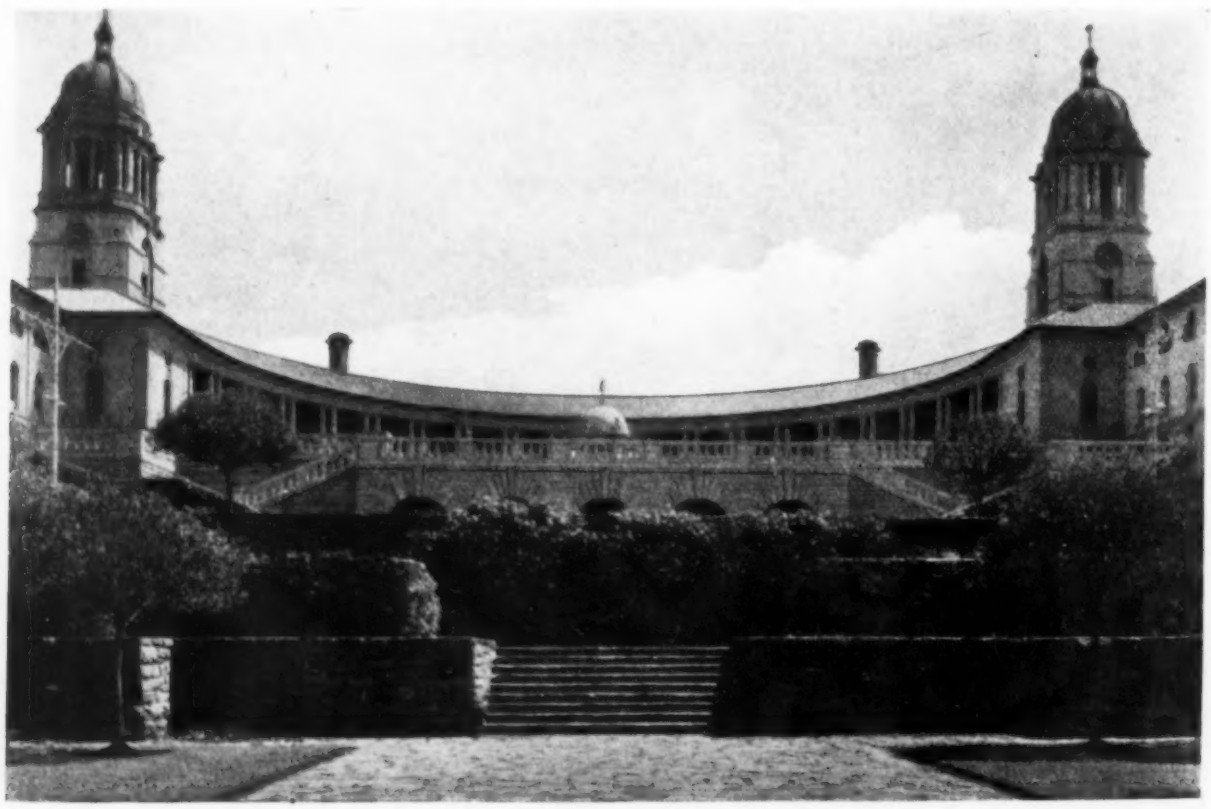
THE result of the competition and design of the winner and several of the other competitors, which were only made public on Friday last, appeared in *The Builder* for that day. We trust that we may be pardoned for drawing attention to this fact, which we do without further comment.

The R.A. Winter Exhibition.

THERE could hardly be imagined a greater pleasure to the lover of pictures than the winter exhibition of the Royal Academy, which opens to-day. For, in addition to the representative collection of works by deceased artists—Sir Luke Fildes, Cayley Robinson, Mark Fisher, Solomon J. Solomon, J. W. North, J. J. Shannon, and Ambrose McEvoy—we have the fine collection of old Masters presented to the nation by the late Lord Iveagh. In the presence of all these beautiful things we can almost forget jazz and cubism, and all the other desperate strivings after the unknown and unexpected, and it would be a hypercritical person indeed who could not gratefully acknowledge the debt we owe to English painters. The catholic minded

San Martin, Segovia, Spain.

may dwell with pleasure on the refined decorative works of Cayley Robinson, the robust vigour and rich colouring of Solomon J. Solomon, the tender charm of country scenes by J. W. North, the elusive vitality of Ambrose McEvoy, the vigour and sobriety of Mark Fisher, the accomplished painting of Luke Fildes and J. J. Shannon, and may well feel that the gift of artistic expression did not die with the old Masters. Many old friends will greet the eyes of those who are wise enough to devote some of their leisure to a study of the Academy Winter Exhibition.



Government Offices, Pretoria.
SIR HERBERT BAKER, A.R.A., Architect.

Social Conditions and Leisure.

APROPOS of our leading article, we hope it will not be supposed that we are indifferent to social problems because we favour a remedy that involves work. There is a connection between better social conditions and leisure, but the intimacy between them lies in the particular twist that is given to the argument. We can appreciate leisure, and we know that it can be obtained at a price. If our price is too high for the work we do we can be fairly certain of plenty of leisure. Our hope for the future seems to us to lie in the belief that the pendulum which swings between work and leisure will be discovered to be the same pendulum which swings between prosperity and stagnation. It is our belief that the year 1928 will see the inclination towards stagnation grow less. In writing this it would be arrogance on our part to pretend that we have even outlined a possible remedy in a few sentences. Thousands will disagree with us, but if we base our hope for the future on anything, no one will grudge us looking for it on our own lines. At least no one will deny that our present system of maintaining a large portion of the nation upon doles is neither an ingenious nor a healthy method of benefiting the social structure. We need not worry here about hair-splitting definitions upon the meaning of prosperity in relation to happiness; we believe that industrial prosperity under any name we care to choose has an important bearing upon the welfare of architecture.

The Great Thames Flood.

THE tidal wave that swept the Thames riverside on Saturday morning with such pitiable and tragic consequences, has been followed by another wave—one of public feeling and resentment that such a catastrophe should have been allowed to happen. Volleys of accusations have been hurled at any and every authority on the riverside. The Thames Conservancy have been accused of not having warned the riverside population, while the London County Council are held up to censure for their alleged negligence in allowing the weak wall at Grosvenor Embankment to go unrepaired—this being the spot where the most fatalities occurred. We are of the very decided opinion that there should be a stringent and thorough enquiry into the causes of the disaster, but we cannot subscribe ourselves to these haphazard methods of fixing blame.

The Grosvenor Embankment Wall.

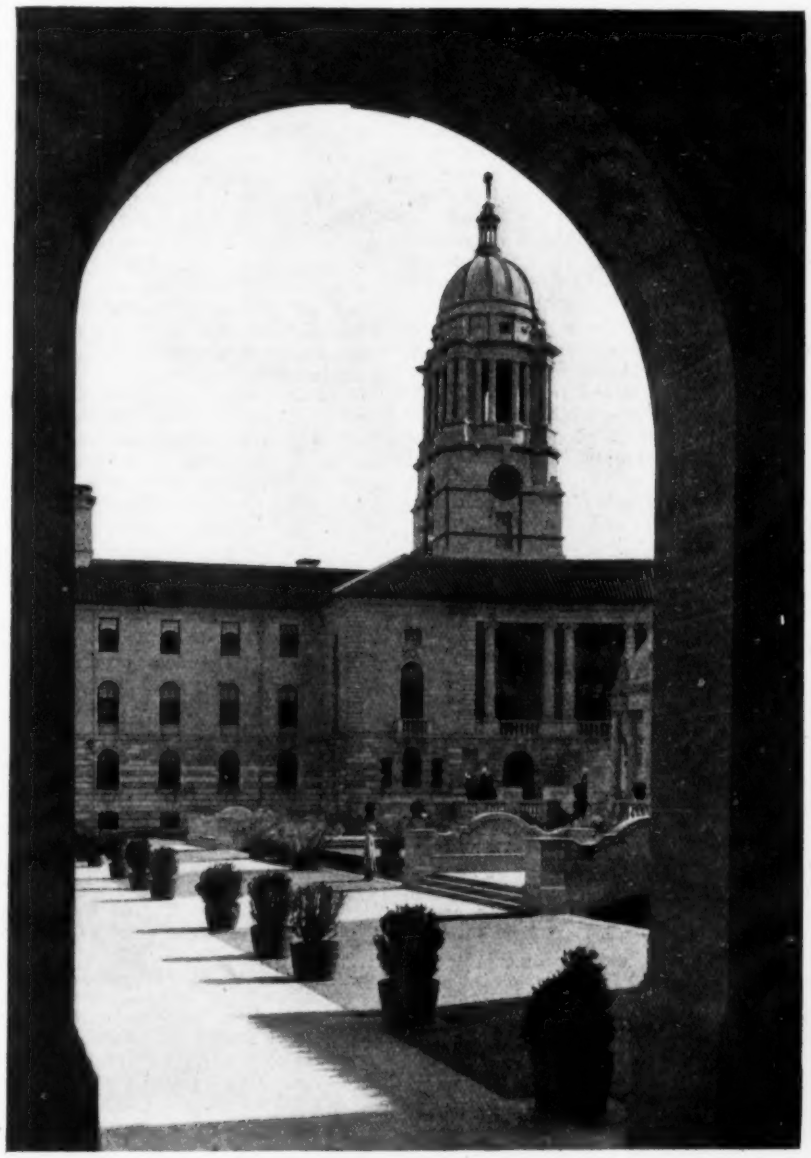
IT is easy to be wise after the event, but those who will turn up—on page 991 of *The Builder* for December 23—for lists of Contracts Open, will find an advertisement of the London County Council asking for tenders for the rebuilding of this very wall at Grosvenor Embankment. This advertisement of the Council's—issued before the heavy fall of snow which must in part have been responsible for the flood—will remove any blame of negligence from them. That the flood occurred before the wall was actually built is most unfortunate, but without taking refuge in "Act of God," we cannot reasonably expect the London County Council to foretell the future. We can only hope that the enquiry will elucidate the real reasons for the disaster and that the proper steps will be taken to prevent a similar future occurrence.

R.I.B.A. and A.A. Visits.

IN future, the R.I.B.A. and the Architectural Association will arrange joint visits to buildings. The visits will be under the direction of a joint committee of the two bodies, with Mr. Yerbury, Secretary of the A.A., as Secretary. It is proposed to arrange a certain number of visits both for the Spring and Summer, some of which will probably be for week ends. Full particulars of the visits arranged will be announced from time to time, and any members either of the R.I.B.A. or the A.A. having suggestions to make of suitable buildings to be visited should send their suggestions to Mr. Yerbury, 34-36, Bedford Square, W.C.1.

The Pastel Society.

THE admirably displayed works in the Pastel Society Exhibition will attract a large number. Fortunately the place of honour in the main gallery is occupied by some of the fine pastel work of Leonard Richmond. His 269 and 268 are splendid renderings—the former is one of the most charming pictures of its kind we have seen. Francis Black in 259 has an excellent result. The group by J. E. Popham shows clever work, but it seems rather too highly finished, and the same might be complained about the beautiful interior, 229, by H. Davis Richter. Miss Mary Yates has a group of good work. Terrick Williams has some charming pieces, and in No. 290 Lawrence G. Linnell has a subject exactly adapted to the pastel expression. Henry Butler and Wm. Redworth also have admirable examples of their work. Generally speaking, there is in the bulk of the drawings a lack of feeling as to the exactly right possibilities of pastel, but the exhibition strikes one as superior to many we have seen.



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SIR HERBERT BAKER, A.R.A., Architect.

"THE BUILDER" DEBATE

A NEW FEATURE

Whenever possible we have spared, and do spare, no pains to add to the utility of *The Builder*—the justification for its existence—and we hope that the new feature which we are now presenting is yet another step in this direction.

Through the medium of this new feature we intend to discuss questions of public interest and concern as they arise from time to time, and for that purpose we are introducing two ordinary individuals of strong convictions, entirely opposed one to the other, to enter upon a series of debates upon the questions chosen. The views of neither may be taken to represent necessarily the opinion of *The Builder*, and our intention is to assist our readers to arrive at a just balance of opinion upon the subjects chosen, from the extremes of viewpoint set out in the debates

Each subject will be allowed four weeks for discussion before a fresh matter is opened. On the first week "Positive" will move a resolution; on the second week "Negative" will move an amendment; on the third week "Positive" will reply, and on the fourth week our readers will be invited to continue the debate, a strictly limited selection from the most interesting of their letters being published before the subject is closed. Letters under this head should be endorsed "*Builder* Debate."

We hope this feature will prove a success, and we shall welcome any suggestion for its improvement or modification, and for fresh subjects for debate.

I. Articled Pupilage versus School Training.

"Positive" moves:—

"That the tendency to supersede the old system of articled pupilage by a so-called complete course of training at an architectural school is to be deplored as less likely to produce efficient practitioners than under the older system."

Sir,—With an Englishman's love of compromise, it is a temptation to sit comfortably on the fence and appropriate for one's own the most plausible points from both sides of a debate. Such an attitude is the strategic position of the opportunist, and those who assume it may acquire that comfortable feeling that they are possessed of "broad" minds, which generally means that they have no mind at all. In search of contemplation, the philosopher is better placed in a tub than on a merry-go-round.

I suppose that nine out of ten, asked to choose between pupilage and studentship of a school, would say that both, or a little of each, provide the ideal training for the architect of the future, thereby assuring themselves of some measure of support from all but those who believe in a clear-cut policy for all matters of importance such as this. The temptation to temporise is ever before the legislator and responsible for nine-tenths of the bad laws that have been made.

Having passed through a three years' course at an architectural school, and having been articled for three years to an eminent London practitioner, the writer can claim some knowledge of the two systems of training, if not that detachment which is helpful to right judgment. In voting for pupilage, with no "ifs" or "buts" to dilute it, he utters a conviction which may provide food for interesting debate.

The point at issue would appear to be whether the student of architecture is to be articled to a practitioner, as the principal part of his training, to which school classes and instruction must take a subordinate place, or whether he is to be enrolled for a three or four years' course at an architectural school, fitting into such a course of training such office experience as he can get. It is not a question of attempting to prove one or other system to be useless, but rather of arriving at the true relation of one to the other, in the equipment of the architect of the future. Which is to be considered the essential part of his training, without which it must remain inferior?

An unwise edict of the Institute has permitted the academic student to assume the stamp of the finished architect. After passing through successfully a certain course of study he is allowed to graduate as an Associate of the Institute, practically without further test, and without condition except as to age. To the general public this indicates that the graduate is qualified not only academically, but as a practitioner fit to undertake works of any magnitude. I submit that this is a most dangerous policy, unfair to the public, to the profession, and even to the "finished" student himself.

The parent, anxious to do the best for his son (I will not discuss the daughter, whom I prefer to see at home!), studies the curriculum of the architectural school. He sees: Architectural History, Building Construction, Architectural Drawing and Design, Professional Practice, Perspective Drawing, etc. What more need the finished architect know? (he asks). What more, indeed! if not the stern facts of life and actuality which do not appear upon the imposing list of subjects taught. Yet it is a knowledge of these which is the most vital lesson which the architect has to learn, and it represents the most impelling influence of all upon his artistic and professional development. It is the one subject which cannot be taught in class, and it is the lesson which absorbs the most time in assimilating. The atmosphere of the school is far too irresponsible to contain it.

The student of design at an architectural school handles schemes of size and scope rarely to be seen in the private office. In his treatment of them, he is unhampered by the restrictions of actuality, knowing full well that a breach of such written conditions as there may be is no very serious matter. And so it comes to matter very little if the plan and elevations do not quite agree, and the addition of another wing of rooms suitably labelled to maintain a symmetry, is forgiven for the smart, "slick" result of the show drawings. This sort of atmosphere is inevitable when the culmination is a piece of paper instead of an actual building in which living people have to live and work in safety and comfort. I may have exaggerated the fault, but students and masters are only human and prone to be satisfied with the jargon of primary and secondary masses, and what not, as the last word in design. And remember that these students who have spent three or four years in a theoretical study come forth at a stage approaching maturity. Their ideas are fairly set, and they have experienced the architectural atmosphere sufficiently long to have acquired ideas of their own, which they are loath to give up. They imagine themselves (and many of them are) fairly fluent amateur Vanbrughs. Can they be trusted to detail a workman's cottage?

How very different is the atmosphere of an architect's office. The little slip that costs but five pounds to rectify is remembered for many a year, thanks to the fluent tongue of master or chief draughtsman. A blunder is discovered that would have meant the collapse of a house, and the thoughts of the consequences, perhaps involving human life, are thrilling reminders. The pupil notes that however desirable a balancing wing may be to a design, the owner does not authorise it simply for the look of the thing.

Then, again, accuracy is an essential of office routine. A difference of a foot or two between plan and elevation or section may cost the drawing office pounds to rectify, and the pupil who offends will be made to regret it. Surely this contact with actuality is a discipline which no academic study can supply?

Now let us turn to the disadvantages which are generally associated with office training. There is a tendency to look upon the articled pupil as little more than a slightly privileged office boy, with only such opportunities of learning as he can make for himself, and that, at best, his outlook must be narrowed by the limited experience to be gained out of one office and under the guidance of one principal. The fact that he may be called upon to answer the telephone, stamp the letters and stoke the fires, is regarded as proof positive that his training is very far from being all architectural, and that much time that might be spent in study is otherwise occupied. I submit that such a contention ignores the most important factor in the education of any student under any system; viz., his own freewill and sense of determination. Without this no student can make progress under any known system of education. True, the practical evidence of practice is limited in each individual case, but what pupil worth his salt is content to absorb nothing but what is pushed under his nose in the office in which he happens to be placed? Surely he keeps his eyes open, studies new buildings, sketches old ones on Saturday afternoon, reads books from his principal's library, or from the larger public libraries, or from the R.I.B.A. Library, if he is within reach of it? As for design, the later he attempts it the better, for design arises naturally out of knowledge. When it does come, and it bears the stamp of his master's work, does not the same apply to a great extent to the school-trained student?

Then, again, this matter of office routine. He runs errands, and rubs shoulders with contractor, client and brother architect. He answers the telephone and learns business address, and care as to detail. He stamps and posts the letters, and learns the urgency of affairs; yes, and he stokes the fires as a reminder that he is on the lowest rung of the ladder he means to climb. I suggest that in all this, he is learning more than if he were caricaturing his professor on the blackboard, rehearsing for amateur theatricals, or taking part in the latest college rag.

Much is made of the value of the corporate spirit at the schools, and the ready access to learned men and books. It would be foolish to argue that such things have no value, but it is possible to exaggerate them, and it is surely possible to promote a loyal *esprit de corps* in an office, and to maintain contact with learned men and books. It is still possible to trace a sympathy of outlook among pupils of the great mid-Victorian practitioners, and among a second generation of their pupils, and, after all, it needs but a live junior section to the existing architectural societies to infuse into the ranks of pupils a still wider spirit of good fellowship.

As to the ease with which the school student gains access to information, this is probably a doubtful advantage. Some say that there were proportionately more Christians in the world when they walked to church than now, when they can attend the broadcast service in their own armchair, and it is certain that the things worth having are worth striving for, and that their value is enhanced by the labour they have called forth. I have memories of many stolen half-hours in curtailed lunch hours, at the R.I.B.A. Library, and such moments are precious because of their difficulties. They are not for the student who can walk into the next room and find what book he will, and a librarian who can tell him what he ought to read.

If training by school methods is to become the recognised thing for a couple of generations, are we not in danger of finding our architecture more influenced by curriculum than by practice? Shall we be turning out architects with a pastry cutter, instead of profiting by the natural development of the individual? Will it be a case of exchanging the natural uniformity of men ruled by

common conditions, for the false uniformity of the drilled squad? I have the gravest misgivings upon all these points. The finest school for living is life itself, and, as far as architectural matters are concerned, this means a rubbing shoulders with the actual process of building. Without this, design becomes little better than a game; well enough for a relaxation, effective enough as a tonic, but demoralising as a way of living for years on end.

I have said that it would be foolish to suggest that there is no place for the school in the scheme of things architectural, or to ask that they should be closed down. What purpose then remains for them?

I think that there will always be a number of students who show a leaning towards academic study, and whose natural bent leads them that way for a career. We need men with time and opportunity to theorise for us, to write for us, to carry out research for us, and to lecture to us. We shall look to the schools to produce these men for us. And the fortunate few who can afford to remain students when their articles are completed will be all the better for a post-graduate course. But the day-school will, under such circumstances, become a very much more modest establishment (I mean in size) than it has grown to be of recent years. It will be in the evenings, when office hours permit, that the architectural student will attend in large numbers the lectures and classes in theory, which can broaden his outlook after the day of humdrum practical politics.

I am inclined to think that such a restriction upon the activities of the day-school would do much to alleviate the serious overcrowding in the profession, which appears to have become acute of recent years. This is of relatively minor importance, but it does seem reasonable to expect the supply of trained students to bear some relation to the number of existing practices. At present, the supply seems to be regulated only by the seating capacity of the class-room.

A board of education would doubtless regard all these suggestions with dismay, and existing interests against anything of the sort are certainly strong. We may, however, rest assured that as the education authorities did not make the world, the daily revolution of the latter is not likely to be disturbed by a revolution in ideas.

I have much pleasure in moving, "that the tendency to supersede the old system of articled pupilage by a so-called complete course of training at an architectural school is to be deplored, as less likely to produce efficient practitioners than under the older system."

"POSITIVE."

THE TREND OF 1927

By HOWARD ROBERTSON, F.R.I.B.A., S.A.D.G.

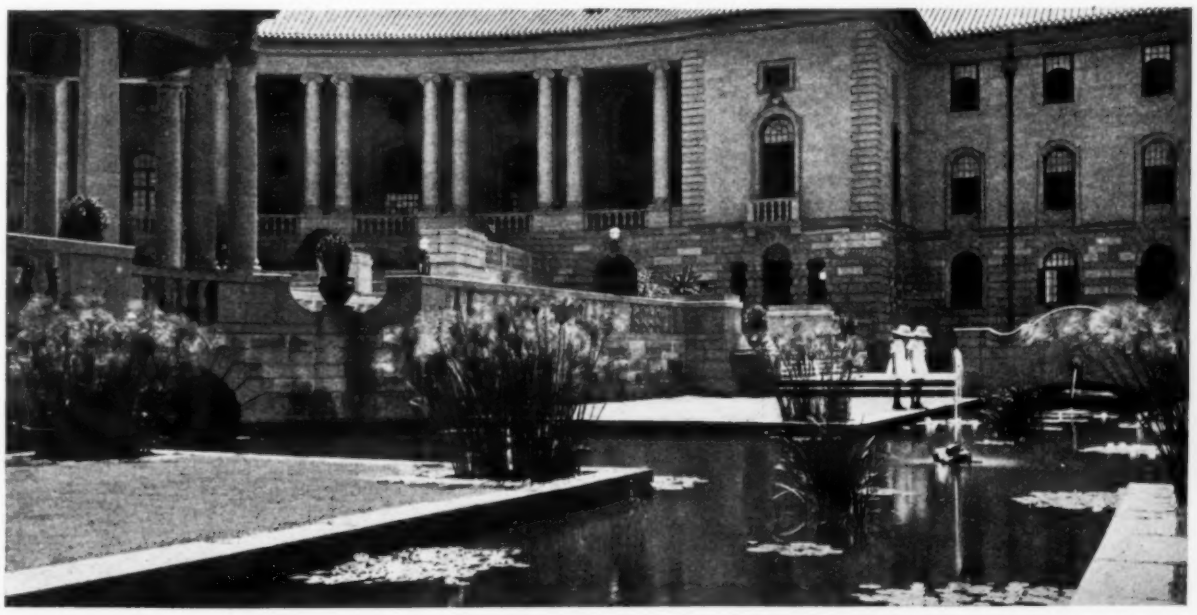
AT the beginning of the New Year we may certainly look back upon a twelve months' period of crowded architectural activities, as well as upon a year which has given us one of the worst summers upon record, ending up with a Christmas season which the newspapers describe as old-fashioned in its accompaniment of ice and snow, but which is also deserving of other epithets.

The weather has been a sharp reminder in its severity of the weakness of the protection which architects and builders are wont to provide in England against extremes of cold to which we are unaccustomed. It raises in a fresh aspect an architectural controversy which has been stimulated in the public Press by able and ardent publicists, chiefly feminine, who accuse the profession of being out of date in their handling of the domestic building, and who urge English architects to take a leaf from the book of the Continental modernists, one at least of whom has laid down his beliefs in such a clear and readable form that they have penetrated the lay mind.

The misery of burst water pipes, the paralysis of so many activities for which the cold has been responsible in a vast number of homes, raises in pertinent fashion the query whether or no the science which to-day is available more than ever before has been utilised in the solution of the little problems of everyday life which the architect must face. Our plumbing still remains bad-mannered in its visible expression; our cisterns are noisy and our apparatus obtrusive in the echoes of its functioning. Stupid regulations oblige us to expose on the facades of our houses an articulation complex and distressing of services which would be better in every way inside, ordered in a scientific way in trunks which could be of easy access. By the sweeping away of out-of-date restrictions the practical and the aesthetic problem would at one step receive a long overdue solution. Within the house we still find a varied apparatus to procure the warmth of temperature and the supply of hot water which are the indispensable aids to living in an age when energy can find such far superior outlets to those involved in manual household labour. The open fire continues to flourish, smoke abatement is still a far-off ideal because individual conservatism retains priority over the well-being of the community; systems of central heating which will combine in one source of heat energy the wasteful and inefficient individual hearth are still generally unpopular; electricity is still looked upon askance as expensive and unreliable for heating and cooking; our houses continue to demand constant labour and cleaning, and in spite of that remain draughty and chilly, ready to fail us in service under the attack of spells of cold and damp in summer and of "seasonable" weather in winter.

Perhaps, when we look back upon the modernists of the Continent in the light of future calm, those very architects who rage at Miss Edith Shackleton, at the articles which ask for roof gardens and "suntrap" windows which let down into the framework below like the sashes of a motor-car, for impervious, dustless, noiseless floors, for central heating and electric clocks and concealed pipes, will recognise that in the publicity which has been given to the "new architecture" in 1927 was revealed a mild expression of public dissatisfaction at the apathy of designers in this country in not beginning to think about the things which in a few years the public is going to demand. Here, then, is a programme, concerned with only one section of architectural progress, but a very important one, which might well figure on the list of activities for 1928, namely, the study of scientific means for improving the equipment of our houses, and bound up with this a campaign to abolish the out-of-date legislation which demands that between a modern bedroom and a modern bathroom, if that bathroom entails a soil pipe, there must be a ventilated lobby. In an Institute which must ever be alert not only to serve its members, but the public on whose patronage the members depend, there is opportunity for a committee which may receive reports and opinions on those points in the equipment of domestic dwellings which are the most defective, which will correlate data on the relative costs of gas, coal and electricity, which will receive and examine information upon the latest inventions applicable to the problem, and which will place this information at the disposal of its members so that the problem may be squarely faced with reliable data upon which to draw.

Out of the discussions on modern architecture which have been a feature of the past year, in particular the presidential address of Mr. Gilbert Jenkins to the Architectural Association, there is gradually emerging the fact that two main issues are involved, the æsthetic and the scientific. In Mr. Jenkins's lecture an attack on



Government Offices, Pretoria.

SIR HERBERT BAKER, A.R.A., Architect.

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modernism was bound up with certain strictures on concrete as a building material, but in reality the two issues are separate. The past year has shown that, as regards domestic work in this country, concrete has not yet proved to have advantages over its chief rival; but this has not blinded us to the fact that modernism in concrete is only modernism in one aspect. No doubt the future will show that when concrete has received the attention of architects as a material for domestic work it will be found that its disadvantages may be overcome, though there is no reason to believe that other modern materials may not be still more worthy of consideration, such as, for instance, hollow-tile construction. It will be of benefit, therefore, if we can clarify our minds, examine materials and equipment as a scientific problem, and realise that modernism is really an attempt to interpret æsthetically and practically the needs of to-day and foresee those of to-morrow. Comparisons, therefore, with art expression such as the "art-nouveau" are beside the point. The architect of 1928 will have to better his scientific and mechanical knowledge to meet the criticisms which have arisen during the past year, for it would certainly appear that in some quarters which cannot be ignored there is criticism of the profession on the score of backwardness and lack of imagination.

In the field of architectural training the old battle of school versus pupilage is still being waged, comparison of the two methods being generally based on the false assumption that the school-trained assistant should have acquired in a five years' course the same competence as the office pupil during a similar period, forgetting that to the school training must be added a further period of office experience. The school training is therefore longer, but the growth of the schools, the number of new centres which are claiming R.I.B.A. recognition, show that the advantages of a scientific basis in theory and construction are assets which are of growing importance under the conditions of present-day architectural practice. More and more the architect is approaching the position of the trained designer and organiser able to correlate the different aspects of the various problems which enter into the modern building and able to tackle work of widely divergent categories. The old days of the domestic specialist, the competition specialist, the "city" architect, are disappearing, and instead we find a growth of practices including many and varied types of building, and the successful entry into the competition lists of young school-trained men and even women, who have applied their experience in mastering school problems to the wider field of practical accomplishment. The Board of Architectural Education of the Institute has wisely refrained from changing its policy of encouraging the schools, for it has in its power at any time to correct a tendency for an over-theoretical training. At present the former haphazard method of pupilage as an entry into the profession is in process of reorganisation into something more controlled and scientific, but no amount of official encouragement will perpetuate the school system if it is found by experience to be a failure. The whole question is therefore on a sound basis. The schools are in the main private enterprises, and their future lies in the success of the results obtained; and in the main they may be counted upon to conduct their business on a business footing, and introduce into their curriculum such modifications as experience, changing conditions, and the demands of the profession may render advisable.

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The Institute has not been laggard in the important matter of linking up the study of architecture with the trades and crafts. Important series of lectures have been held, remarkably well attended, at which builders and operatives have made a frank exchange of views on their mutual difficulties and problems. It is vital that this work should go on, expanded, maybe, to include discussions between architects, builders, and such specialists as heating, plumbing, lighting, and structural engineers, and the manufacturers of such important elements as flooring, wall coverings, lighting, sanitary fittings, etc.; the specialists and the engineers have much to offer to the architect, who in turn makes great demands. Overlapping and costly experiment might be avoided were it possible to organise a regular interchange of views. The R.I.B.A. has a Board of Architectural Education; it might also have a Committee of Building Research, charged with this whole question of contacts and interchanges, which are so important if the profession and the building trades are to keep abreast of public requirements. To this body would be submitted such questions as those raised by Mr. Alfred Bossom in his interesting pamphlet on the cost of building, in which he draws comparisons between English and American building methods, and concludes that by a better organisation throughout it would not only be possible to obtain cheaper building costs in England, but at the same time raise the general level of wages. These are vital, not academic questions In 1927 they have been raised; in 1928 they should be carefully examined.

In architectural accomplishment the past year has shown a general improvement in standards. Regent-street stands as a completed thoroughfare, in which the last buildings are better than the first. The Piccadilly Circus approach is very fine, Sir Reginald Blomfield and the other architects associated with the Circus end have done something of which no Londoner need be ashamed, and which most of their brother architects admire, if not aloud, at least in secret. The R.I.B.A. Street Medal has gone to the new headquarters of the Society of Friends by Mr. Hubert Lidbetter, a building reserved and dignified according to the best London traditions, marred to some eyes by concessions to grandeur in the great Doric portico which pierces through the centre of its quiet brick façade, but one which well deserves recognition, for, unlike one or two important London buildings of this year, its effects are obtained unobtrusively and without a lavish expenditure.

Of large buildings in the modern expression there are not many completed, but one or two in being, notably the new offices for the "Underground," which Messrs. Adams, Holden and Pearson have designed for Westminster. To this firm also are due some interesting façades for Tube stations, marking an immense advance, though the architectural note adopted requires a little flexibility between the extremes of Morden and Bond-street. In shops and smaller buildings, and especially in interiors, there is a modern note, based perhaps too often on current foreign examples, but showing the way at least to a brighter understanding of modern problems. High in this category stands the achievement of Mr. Emberton for the Advertising Exhibition at Olympia. For once we found a general plan, a definite and organised scheme for the decoration of this ungracious acreage, and in spite of the obvious one-man influence, there was variety and crispness of effect in plenty, a resource of invention which was by no means spent on the first few stalls.

The past year has maintained a good post-war tradition of keeping us in touch with foreign work. There have been some excellent publications, a larger attention paid by the technical Press to current events abroad, a visit by the Architectural Association to Austria and Prague, and an important exhibition under the auspices of the A.A. of modern Danish architecture. The buildings which were shown revealed the fact that between Danish work and our own there are evident sympathies; in both cases there is quiet and restraint and a sympathy with tradition, but the Danes have been more greatly influenced by the anti-Romantic wave of the younger Continental modernists, and the work of the younger school shows a studied preoccupation with simplicity which robs it of a certain human vigour.

In the field of competition work the results of the past year have shown that in the determination of awards it is still the planning conception which is the deciding factor. Certain it is that a fine elevation will never compensate the failings of a poor general scheme, but there appears to be a growing impression that elevational distinction is of such minor importance as almost to be negligible. In one or two important municipal competitions of very recent date the elevational treatments were truly of stock pattern, undistinguished in character, in decoration, and careless in proportions, though not in general massing. There is a real danger, too obvious to require elaboration, in such a trend. To-day it is the plan, to-morrow it may be the elevation; but the best architecture is not to be compounded in such a fashion.

We learn, at the close of the year, that the Institute is to move into larger premises, and we note in passing that these headquarters are not to be a home designed by architects for architects. From the public point of view the decision is in the nature of an anti-climax. But the internal work of the governing body of the profession must needs be constant and untiring, and perhaps the move to quarters already existing presages an expanding programme for the solution of past difficulties and for future creative work. We trust that the year 1928 will prove to be one in which the Institute acquires a fresh prestige, its activities commensurate with the increased space at its command.

Mediæval Architecture.

Sir Banister Fletcher, F.S.A., continues his series of University Extension lectures on the History of Architecture at the Central School of Arts and Crafts, Southampton-row, W.C., this term with a course of twelve lectures on "Mediæval Architecture" The first lecture was on Wednesday, January 11. Sir Banister will deal mainly with English Architecture, devoting special lectures to Westminster Abbey, the Tower of London, and Cathedrals and Churches. Each of his lectures will be fully illustrated by means of lantern slides, and by photographs, diagrams and models.

SEAFORD CHURCH, SUSSEX.

BISHOPSTONE CHURCH, SUSSEX.

WEST DEAN, SUSSEX.

Some Sketches in Sussex. By MR. F. PERCIVAL.

ARCHITECTURE AND THE NEW EPOCH

BY REGINALD HALLWARD.

IT has always seemed to me very inconclusive to discuss the variations of style and character in architecture from the point of view only of its exponents—architects themselves, who are as much the result of causes outside of architecture as are the effects which result therefrom. To understand the spirit of the age in which they are working is more vital for us to-day than any considerations of styles or periods. The characteristics of the architecture of the twenty years before the war were the expression of the ostentatious display of the prosperity which then prevailed. In a great city like Antwerp, to take an example, the great commercial buildings of that period are as costly and vulgar

Reims Cathedral: The Virgin-Group of the Visitation.

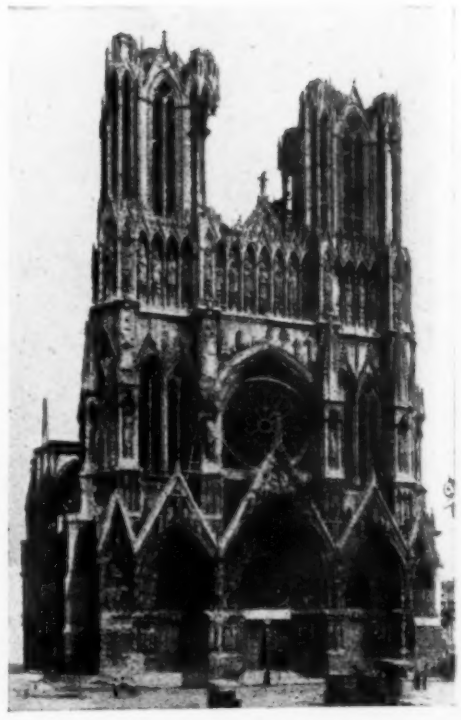
as wealth governed by such an outlook may be expected to produce. And we have to think of this—and to think of it is re-assuring—in noticing the features of post-war rebuilding, of which so much may be seen in the war areas of France. The cleavage in outlook and building is one so great that we cannot rely on reference to the styles, or our text-books on architecture, for any explanation of it. The divorce from tradition, for instance, in the re-building of Reims is so entire that we must shut up our books and forget our traditions and the rather dull solemnities in which for so many years we have indulged in talking of the art, and look into life itself.

For this new architecture, we may feel very sure, is impatient of all of it. It is also a good thing when we cease to be too solemn and doctrinal and get ourselves away from the old reiterated and backwards way of looking at things. "The world is at creation's day," and therefore full of surprises, and all the load of inherited knowledge, the books of the law, the securities of much ponderous dullness are now behind us. How refreshing it is to take again to the open road without even a text-book in our satchel.

Some such thoughts as these scattered themselves through my brain as I looked at new building after new building, "naked and unashamed"—naked in the sense that all the old wardrobe of the past which had become so shabby under the wear and tear of Gothic and Classic revivals had shed itself altogether. The first principle of sound activity is to carry your head high and not always to be asking permission for oneself. Architecture, as I interpret it, in a city such as Reims, is not anxious because it has parted company with its historical background now really become a very mouldy sort of affair. Not that I would for a moment speak with irreverence of the dead—my disrespect is for the point of view that questions the decease. Can we not see that dissolved in the blood and tears of the war there has come another dissolution—the obsequies of mediæval Europe. We may, looking backwards into the glorious mediæval twilight, "wave passionate kisses at parting"; but to live in the unreality of a dead dream, when it is our life's necessity to discover the new and living one—this is the peril to-day, and the issues are of life and death for western civilisation.

So to return to where I began—let us see in the character of the rebuilding, of architecture to-day, not what it has not, but what it has for us. Before doing so it were worth while to turn from the rebuilding at Reims to spend a few moments before its ancient cathedral, so grievously shattered by the war,—not to form comparisons, for comparisons there are none; nor to regret the past, for that is a very vain dilettantism; nor to fear the future, which many of us do, and is the greatest peril of all. What, then, is it that leads us to these disquieting thoughts? In a word, it is that the architecture of Reims Cathedral is the expression of the whole of life—thought, feeling and intellect wedded together—while in the rebuilding of the city of Reims we see the expression of one phase of it only—and that the material one—governed by circumstances and economic necessity. But these are not the whole of life, as most of us know, wherein we only exercise part of ourselves—putting forth not as we feel, for we have in us to feel and do the best things, but so much only as we can do to find security. Not that the new building is at all badly done, or of the "speculative builder" kind such as we have suffered from here; and I like to see the architects signing their names prominently on the buildings—and many of them such buildings! But as I watch it all, it does not seem alien also to watch where, high up in the dappled sky, a squadron of war planes are manœuvring over the Cathedral, while in the Cathedral yard below the masons are busy with their saws and chisels over the restoring of the shattered building. And then I turn to look at the sculptures over the western porches, which the sun is illuminating and has now turned all to gold, and ask myself what kind of men were these whose labours, executed

A New Block of Flats, Reims.



Reims Cathedral after the War.

on this exalted scale, could reach such revelation, which our economic life forbids in the urgency of getting a living. Was it all so easy for them, and is it all so difficult for us? How, then, was their life governed, to enable them to carry their work through to this high perfection, which, clothed in a Greek perfection of form, is touched, as in the head of the Virgin of the Visitation, with a tenderness and beauty almost beyond compare? May we not well inquire whether our economic laws and material considerations are worth all the value we attach to them, if they rob us of the freedom ever to rise above them? And yet it is apparent that the rebuilding at Reims is the expression of them—is, in fact, precisely and accurately the expression of how far such an outlook can take us. But who will interpret the law of these ancient sculptures, which take us so much further? We have introduced into the currency of life the base coin of economic necessity—with its religion of security—security is a phantom invented by fear, for there can be no security. The triumphs of civilisation respond to valour, and only to valour, to trust the adventure of life and the miracle which upholds it. And if we are rebuilding our cities on this lower plane of economic security we shall reach only what that includes. For when we get back to the deeper facts of life, facts we so persistently ignore, they enable us to see that the best architecture, or anything else of immortal growth, does not come out of any such contracted experience, but from a belief in the inspiration and fidelity that life returns to us when we trust it.

For who can say where experience, knowledge stops, and intuition and feeling come in? Nature, observation, experience—yes; but there is also intuition, creation, and no economic laws can interpret these. And it is only when this other truer interpretation of life transcends the mean environment of circumstances and economic necessity, that we can enter into any understanding either of ourselves, or of these ancient sculptures.

I have dwelt on this, as it helps us to understand and to be just to the new building, the values of which are economic rather than artistic, not being drawn from any emotion exceeding the material values in which, in fact, we mostly live to-day. The architect working in this environment does the best he can with it. Is, himself, part of it. And so it remains untouched by feeling or any deeper emotion, and the craftsmanship founded on industrial standards never reaches to art at all. The buildings suit our transient temporal

"The Mediæval Twilight." By REGINALD HALLWARD.

A Post-War Commercial Building, Reims.

needs, so ill-secured; and can be accepted as well expressing them; but the guns, though silent, are only just out of sight, and as I watch that squadron of warplanes circling above the Cathedral I see the pathological connection that exists between them and the rebuilding of Reims.

It may be said there is some contradiction in appearing to deprecate the influence of the past and then in later on confirming it; in decrying its influence, and then applauding its inspiration! This is not so when it is understood we are applauding its freedom and outlook, in contrast to our economic servitude. Our outlook, based so much on the false teaching of economic necessity, denies us the freedom to be masters of our own lives, in order to conform to its lower and temporal interpretations. We do not better this by any solemn and doctrinal way of rehabilitating the old classic and mediæval wardrobe. If I had not a profound respect for the past and its glorious patrimony, could I risk being so misunderstood? But the mediæval approach of life and work was freer than ours; richer, because it had more to give; not poorer, because it wanted so much less. Yes; it is this perfume we must restore to life to adorn it and give it completeness.

And so I welcome the new building at Reims, for it is the present reality, and is therefore a step forward, because freer from the unreality of dead formulas of building and more the likeness of ourselves. And through that little that it now gives us we shall yet find all the rest.

So the new epoch opens—and yet in these early years, though tragic and disquieting in so many ways, there is reassurance, too. For we are getting back to ourselves, and as we have shed, or are shedding, the old mediæval wardrobe, so shall we shed those desolating superstitions that, assuming to be laws, leave us the victims of an economic necessity. For we lag behind our own convictions, which demand from us more than getting a living, or that we should all go into business. There are regions unexplored within us which can give a truer account of life than all this, and as we turn back to them, and trust them more, there is nothing in mediæval or any other architecture which we may not ourselves accomplish and surpass.

ILLUSTRATIONS, &c.

[Descriptions of the illustrations which we give in this issue will be found on pages 94 to 96. General News and Competition News are on page 97, and Correspondence is on page 98.]

THE BUILDING INDUSTRY AND THE MOTOR-CAR

SOME NEW YEAR REFLECTIONS.

By JOHN ANGUS.

It is customary to look forward with hope and confidence at the beginning of a new year, and, within limits, it is a commendable attitude, even if there seems little reason to justify either the confidence or the hope. I particularly like the spirit of the famous report from Foch to Joffre:—"My centre is going; my left wing is in retreat; the situation is excellent; I am attacking." Sound strategy may have justified this message, but at the risk of ruining the strategical lesson I admit that I like the message simply as it stands. Incidentally, I have seen other versions of this report, but again I have chosen the one that appeals to me. One can readily see the danger in overlooking the signs of the times, but there is also a danger in reading them wrongly. This is a danger that is very real in these days when facile generalisations and slogans are apt to become obsessions.

One of the difficulties in writing about architecture at this particular time is in selecting a point of view that is likely to give the greatest pleasure to the reader. By this I do not mean the ability to write about a subject in a manner that is likely to coincide with the reader's own views. I refer to the fact that there are occasions when certain discussions may not seem to be seasonable reading matter. There is an ideal element in architecture, and it should be kept in view, but there is an ideal element in civilisation, and, like the hen and the egg, one wonders which came first. The curious and the diligent always find satisfaction in working backwards from effects to causes, whether those causes be first or last; nevertheless, I do not blame the architect for being more interested in architecture—as an effect. He will no doubt bear in mind the well-known quatrain by Matthew Prior:

"A different cause," says Parson Sly.
"The same effect may give:
Poor Lubin fears that he shall die;
His wife, that he may live."

I believe, although I cannot check my memory, that it was Mr. Lewis Mumford in "Sticks and Stones" who wrote to the effect that the only expression that really matters in architecture is that which contributes in a direct and positive way to the good life. Now it is fairly certain that architecture is often called upon to serve what does not appear to us to be the good life. And it is precisely here where one is compelled to think backwards in trying to take stock of the social and economic structure, and in speculating upon the architecture that is likely to result. For the architect who tries to distil architecture from an age that he dislikes, I would recommend to bear in mind that when Montaigne found his opinions opposed to that of the Church, and himself in danger of pontifical displeasure, he circumvented trouble by informing His Holiness that the essays contained only his private opinions and not his opinions as a Catholic.

It is a bald statement that architecture, both in quality and in quantity, is a reflex of the social and economic conditions of a country. It is more pleasing to think of architecture—as an effect—as the ideal element that suggests the romance of commerce. In literature it is true of Burke and Shakespeare that when they treat of commerce they see not only the goods and money changing hands, but the ambitions, dangers, fears, and delights of those engaged in commerce. Similarly, in architecture, there are those who see in a new bank, for instance, a dignified symbol of the romance of money. Unfortunately, they sometimes see this and nothing more; they shirk at the mention of finance or trade that creates the necessity for the bank's existence. It is the difficulty in seeing the problem whole that probably gave birth to the expression "utilitarian, economic and romantic æsthetics." In forsaking, therefore, the pleasant task of discussing architectural values, I turn to some phases of our civilisation that are moulding its architecture.

In writing about industrial economics it would seem safe enough to say that one man's opinion is as good as another's; there are so many puzzling features about our present mode of living. To attempt to explain the growth of the motor-car, for instance, in face of what we are led to believe to be an appalling industrial depression, would open up an interesting discussion. No one knows whether we have more money to spend, or whether we are simply spending it differently. These are really important matters in an attempt to peer into the future developments of architecture. Collateral with these movements we have a motor industry that is busy, while staple trades like coal and cotton are struggling in despair. No one would suggest that they have any connection with each other, but neither has any moral been drawn. The facts have been accepted as they stand, and again the architect is compelled to peer into the future.

There is a tendency amongst architects to grudge the place that the motor-car has won for itself, and I think I can appreciate the grudge. The motor-car—unless there is an equivalent increase in the family budget—has undoubtedly carved out a slice from the building art. I believe it has impoverished architecture, whether the family budget has increased or not. It has also helped to bring destruction to the countryside, so much so, that it has begun to sicken its most enthusiastic followers. Despite its faults and

Mason's Yard in the Cathedral Close, Reims.

its failings, I believe, however, that the motor-car—or rather the success of the motor-car industry—has several important morals to teach.

In a record motor exhibition it is claimed by the motor industry that it produced almost the only thing which is cheaper to-day than it was just before the war. One can heartily congratulate the industry on this achievement, and still point the moral that a manufacturer must create a continued demand for his products. In what is, to a large extent, a luxury trade the demand has been created. I have heard of no desire to nationalise the manufacture of cosmetics, chocolates or motor-cars, nor for that matter of any uneasiness when these industries have their domestic difficulties. They find their own market, and they settle their own difficulties. One feels that if the moral of the motor industry were appreciated by industry generally, the outlook for everyone would brighten considerably. Certain it is that we cannot go on indefinitely buying motor-cars or in establishing road-making as one of the staple industries of the country.

Architects have come to accept the small house and the big motor-car as a manifestation of a decided change in our social system. I think this is true in part, although it is hardly a complete explanation of the victory of the motor-car. It is not altogether a simple truism that a motor-car is more popular than a house; it is rather that the motor manufacturer has made his car more popular than the builder has made his house. (I mention the builder, because it is through him that the architect encounters the financial side of building.) According to the laws of economics, the building industry should have been one of the biggest industries in post-war industrialism. Instead, it has been, to a certain extent at least, a limited industry, with the inevitable result that the costs of a house do not compare favourably with those of a motor-car. To put it otherwise, where there is a necessity, the price remains comparatively high; where there is an element of luxury the price comes down to accommodate us. That it should have been necessary over so long a period to subsidise a nation to build houses is a procedure that becomes humorous if one imagines that the subsidy had been applied, instead, to motor-cars. Then, in all probability, motor-cars would have been dear, and houses cheap. As things are, I believe that the motor-car has taken a permanent slice out of building, but I also believe that it has earned its reward and deserves congratulation. The building industry must take its share of blame for the change in the social structure that converted homes into "housing."

It is true that this is not the whole story. A subtle change was taking place in our social habits, but the building trade gave the movement an additional impetus. The dictum of a learned judge upon the minimum income necessary to own a car provided amusing protests from the public. From the correspondence that ensued it was astonishing the sacrifices a "low-salaried man" would make if he found the luxury of a car something of a tax on his resources. He would go less to the theatre or the picture-house; the family would practise certain economies in the way of the children's education for the sake of the car. None of them, I noticed, were frank enough to say they were quite content with a cheap bungalow, or that they were waiting until a kind Government would help them to build a house. A few braver spirits considered the sacrifice of a bedroom well lost to find space for the essential garage. Equally interesting was the unofficial census in the *Daily News* of a road in new suburbia. Typical of the lot was the following :—"They [a young couple married three years ago] live in a four-roomed bungalow, of which a luxurious garage, complete with pit, electric light and tool-bench, is the most conspicuous feature. They have a small income, a small dog, and a small car. No children." There were 32 houses, 29 motor-cars, 25 dogs, and 12 children, and the estimated yearly expenditure in the road was on these lines: Buying houses, £3,200; motoring, £2,500; education of children, £200.

I make no pretence of giving even an outline of the changes in the structure of society, nor do I express any opinion upon the moral significance of the changes. I merely speculate upon the approach to the problem by way of architecture. Clearly it is not sufficient that the builder should be content with a garage in lieu of a room, regarding the matter as a question of cost; nor is it sufficient that he should regard "housing" on the quantitative theory, on the assumption that a certain number of houses must be built, regardless of economics or any developments in our methods of living. When architecture goes out of life, and homes are regarded as "housing," the outlook for architects will be as cheerless as that of the occupiers of these houses. The danger has been obvious for years. High costs of building were bound to result in experiments with the cheap and nasty, and any need on the part of the owner for an apology for his miserable dwelling was removed when manufacturers seized their chance to redress the social balance by devising the cheap but reliable motor-car.

We are apt to smile to-day at the recollection of Victorianism. Its faults, we are told, survive in conservatories, stoves, and basements. The Victorians were self-conscious of their possessions, and they were eager to be worthy of them. When life became a question of manners, of breeding, of correctness and tone, it was not (so it was argued) a good soil for art. To-day the whirligig of time seems to have sent us to the other extreme. Our high-spirited inhabitants do not desire permanent habitations; they are neither self-conscious about their homes, nor do they deem it necessary to apologise for them. I begin to think that something was lost to architecture when the snobbery of the home was killed or was transferred to other things. Certainly it is not all loss, but there is a difference between regarding a matter rationally and disregarding it altogether. The architecture of the home has been put on to a rational basis (at least, so I understand), and apparently it must take its place with other things on this basis. One might put it this way—that a home of some sort is a necessity, but there are other competitors in the field. I am not going to suggest that a house is a necessary evil, but, despite the views of our social reformers, I am inclined to think that this point of view is by no means uncommon. It is for the building art to counteract this tendency. Meantime there is a muddle somewhere. One lot of social thinkers is dumping the town-worker into the country, while another lot is buying up rural areas to preserve them from being built upon. In these moves and counter-moves one feels that the building arts must make some real effort to save themselves—or the public from itself. To place a prohibition upon buildings of any kind is at once a positive and a negative measure, but surely something can be done to check both the spread and the ravages of the disease.

A word of explanation is necessary for the continual reference to the motor-car throughout these notes. It is difficult to draw out the moral and make it sufficiently large and clear, and, indeed, I am not convinced that it would be wise to try. It is better, perhaps, at this time of year, to start a train of thought than to set up argumentative theories. The significance of the motor-car is obvious to every thoughtful architect, whether he agrees or disagrees with the causes that have produced the effects. Granted this, there must be a right point of attack for the architecture of the future. Further, I think that the success of the motor industry does hold a significance that should stand out more strongly in relation to larger problems pressing heavily upon the industrial life of the country. As I mentioned earlier on, no one can say with certainty whether we have more money to spend in these days or whether we are spending it differently. If the latter speculation is correct there must be a fundamental reason. In the architectural world I notice that there is a tendency to claim at once too much and too little for mass production. It may have been a likely solution for an acute housing shortage, but it is not the solution one would like to see in the future. Nor is it a correct diagnosis of the economic position. There are mass-production industries manufacturing what are regarded as necessities, yet the demand for their goods is insufficient to provide employment. So far as houses are concerned, I am compelled to say with reluctance that had there not been a necessity I believe they would have been much cheaper to-day, and little would have been heard about mass-production remedies.

There is a commercial side to the housing problem, and we can only touch upon it with diffidence. The builder maintains that he has no need to cheapen his houses. Since he cannot increase the demand for his houses beyond a certain fixed point, he cannot pretend to keep pace with the new models of motor-cars. The horrid suggestion arises that he might compete, although Heaven knows where this might lead to in the architecture of the future. I make no secret of the satisfaction I feel when I hope and believe that many of the dreadful modern bungalows will not last very long. They will perish and make way for something better, and we can rest assured that there will be no appeal for funds to save them from destruction. I put forward the thought—and I leave it at that—whether our modern houses are good enough and cheap enough. I think we may be past the day when dearness connotes durability and beauty, while cheapness connotes shoddiness and ugliness. To suggest that permanency can be divorced from architecture is, I know, to be found guilty of rank heresy. Nevertheless, our slums have lasted too long; they were built too solidly; they were evidently worth repairing; and they lasted far longer than our outworn ideas. As an apology, I plagiarise Montaigne and confess that these are only my private opinions and not my opinions as an architect.

Chicago Building Record.

We take the following from the "Chicago Sunday Tribune":—All records appear to have been broken in the construction of the Pittsfield building at the south-east corner of Wabash and Washington. Work started on the foundations for this thirty-eight storey structure on November 1st, 1926, and eleven months later, October 1st, 1927, it was ready for tenants. Incidentally, the tip of this structure is the highest point in the city, being 557 feet above the sidewalk, or one foot above the tip of the cross on the Temple building, 556 feet above the sidewalk. The Pittsfield is two feet higher than the Washington monuments. Its foundations go down 110 feet to solid rock, making a total height of 667 feet.

Durham Castle's Decay.

Architects and engineers, who have been consulted, have announced, according to the *Morning Post*, that certain parts of Durham Castle, including the Great Hall, are in imminent danger, and may collapse at any moment. Architects have decided that it is inadvisable to continue the use of the Great Hall and Norman Library, and both have been closed, pending a decision by the members of University College, who occupy the Castle. About £23,000 has been expended on the preliminary work of preservation already executed, but the cost of making the whole fabric permanently safe is said to be estimated at £150,000.

THE REPAIR OF ANCIENT BUILDINGS—II

By A. R. POWYS, A.R.I.B.A.

THE DETAILED SURVEY, OR PERMANENT RECORD.

THOSE who have the care of an ancient building should possess a detailed survey of it. The survey should be: (1) written, (2) drawn to scale, and (3) photographic. The written documents should contain an account of all the defects and weaknesses of the structure and the nature of the materials used on the surface and in the core of walls and of the condition of these. A clear account of the causes of failure should also be included. Further, there should be a description of repairs that have been or are being undertaken and of changes that are made. And a survey can never be regarded as finally complete. It should be checked and corrected every five or ten years.

The survey made by drawings to scale should consist of plans, sections, and elevations of the whole and of parts; especial care being taken to show the position and extent of fractures in walls, vaults, etc., the irregularities that are due to movements such as the leaning or bulging of walls and the sagging of horizontal courses. All these should be shown on plan, elevation, and section with minute accuracy. Superimposed plans taken at different levels are of great use. Figured dimensions should be fully given on these plans. When opportunity offers, drawings of hidden structural members should be carefully made.

The photographic survey should include both views of the whole building, photographs of details, and whenever possible should show the progress of building operations. This survey should be made to illustrate the written and diagrammatic surveys. Such a triple survey should be kept up to date and any movements that are discovered should be most carefully recorded. The survey should pass with the building from owner to owner. It is remarkable how seldom even imperfect surveys exist on all but the most important buildings. They are in reality of great use, and the cost of making them and keeping them up to date is small compared with their value. The Society for the Protection of Ancient Buildings has photographs and notes on the conditions of some buildings in England, chiefly of churches; few deserve to be called full surveys. These are always available for inspection. In its turn the Society would be grateful if this collection could be enlarged by the generosity of its friends.

When structural repairs are to be done a survey is always desirable and sometimes imperative. Too often the owners of buildings neglect to give instructions for this. It is true that an experienced architect can carry through superficial and sometimes even important structural repairs without making a record of such a survey, but this is no justification for its omission. They are useful and will in the future be useful in the preparation of repair and strengthening schemes and incidentally they may be useful to rebut criticism when such work is completed. It has been found that without a survey the causes of movements have been wrongly diagnosed. Mr. William Harvey for the first time in the history of the subject has described what he has called "drift" in buildings. Briefly stated, this means that wherever a thrust occurs in a building, unless it is met by the solid earth itself, gradually but inevitably the upright supports will be overturned; thus if the cross or longitudinal section of a Gothic cathedral is considered, the thrust of arches against buttresses or towers high above the ground will, for all the precautional massing of weights at these points, eventually overturn them; and this in spite of the fact that when designed the line of thrust was brought within the central third of the bases of such buttresses or towers. This is an interesting fact. But it is one which, because the movement is very slow, may often in a building which remains complete be neglected or ignored for many long years. This is a point, however, to be noted in making a survey of all buildings, but particularly in ruins where counterbalancing loads and arches may have partly or wholly disappeared.

The best diagrammatic survey I have seen of any ancient building is the one of Tintern Abbey, which, I believe, Mr. Harvey prepared for the Ancient Monuments Department. A reproduction of this appeared in *The Builder* of August 18, 1922.

The necessity for the careful survey of even small buildings may be illustrated by a not uncommon state of affairs. Walls of small churches have been condemned and rebuilt because when seen from within they have appeared very distinctly to lean outward. A precise survey in such a case may prove that while the outer wall face is upright, the apparent inclination is due to the fact that the thickness of the wall decreases as it rises from the ground; in fact, that the wall remains exactly as it was built. It has been suggested that the explanation of the form of such walls lies in the fact that they have been built against the outer face of older and leaning walls. In some small mediæval buildings there is good evidence to support this explanation. At Tisbury, in Wiltshire, there is existing a case something of this kind, though I do not remember if there is evidence that the older walls were leaning, neither have I closely examined the joints between the newer solder work. The central tower there is twelfth century, and no doubt the older chancel was coeval. There is now an early fourteenth-century chancel which may well have been built immediately outside the old walls. At the west end of the chancel and to the east of the earlier tower is an arch designed to carry the east wall of a tower that was never built. This is built against the older arch which still remains. It appears that the new tower would have been big enough to enclose the old.

Points Indicative of Matters to be Noted.

The following are points suggesting matters which should be noted in making a survey:—

The abutments taking the thrusts of roofs and arches should be examined to see that they are strong enough. Roofs which have no tie-beams should receive particular attention.

Note should be made of all signs of damp in the building, and their causes should be traced and recorded.

The nature of the site, the subsoil, the foundations, and the disposal of surface or ground water all deserve attention.

In dealing with church towers, the particulars of the bells, the cage in which they are hung, and the foundation beams which carry the cage, should be given with detail.

Provision against fire, and any circumstance which might prove a source of danger, should be considered.

The nature of the various forms of decay that attack timber, stone and other materials should be mentioned, and also any evidence as to the rapidity and continuance of such decay. For instance, in the case of timber it is important to notice whether decay or weakness is due to dry or wet rot, to worm or "shakes"; and, in the case of stone, whether disintegration is due to frost, wind, or to chemically charged atmosphere. It may be advisable to take the opinion of an analytical chemist on some of these points.

The dates of works of repair often indicate the amount of movement which has taken place in a given period, and therefore, if possible, should be ascertained.

Fittings, such as glass, tiled floors, brasses, statuary, and the like, should be described.

The Use of Tell-tales as Evidence of Movement.

It should always be remembered that a survey is made as much in the hope of proving that extensive works may be unnecessary as of finding out what should be done; and with this in view, the movements of walls, etc., as shown by fractures in them, should be accurately measured and not assumed. As a means to this end, "tell-tales" should be used. The usual "tell-tale" is of cement mortar about half an inch in thickness and an inch or so in depth, placed across a crack after filling up any void, and extending on either side sufficiently to get a firm hold of the two solid portions of the wall. Tell-tales should only be set on firm material. Plaster is usually not hard enough to take them, and they must only be set on a clean surface, and no coating like limewash should intervene between them and the solid. Some advise that glass or tile should be used instead of cement mortar, as the latter material, unless in good condition, is liable to expand and contract when setting and so cause cracks, which may be mistaken as a sign of continued movement. Mr. Wm. Weir often uses Parian cement, and prefers it to Portland cement. There are also more elaborate and more scientifically accurate methods of testing movements, which it is unnecessary to describe here. Besides dating the tell-tales, notes should be made on the diagrams and in the report of their positions and dates. Tell-tales should not be removed too quickly, as it is useful to note if movement takes place during unusually wet and dry seasons, or whether cracks increase during and after repairs; indeed, where they are out of sight, they should be allowed to remain permanently. One advantage gained by the use of tell-tales is that movement may be shown to have stopped, and with this knowledge much work may be saved.

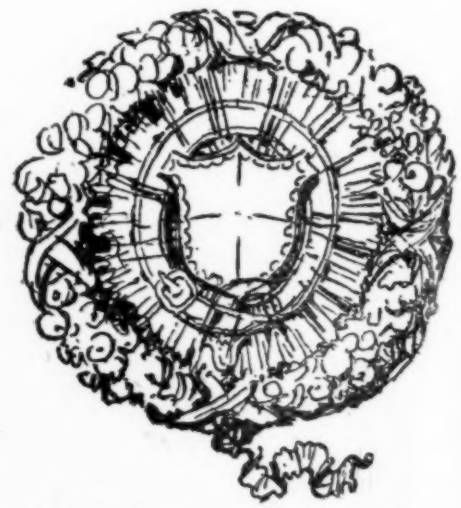
Calculated Stresses and Strains.

In ancient buildings, while they are useful as a guide, it is seldom possible to rely on calculated stresses and strains, except for quite simple forces, for the formulæ in general use are obtained by experiment in new work, whereas with age and decay the nature and strength of old walling varies infinitely. The correctness of the conclusions, so reached, is bound to rest ultimately on experience, for a number of important factors in the calculation must be postulated. Used, however, with proper caution, they are helpful.

The Order of a Report on a Building.

In writing a report on a building with a view to its repair, it has been found convenient to describe carefully its condition and the causes of defects before adding directions or suggestions for their treatment.

(To be continued.)



From a Sketch by C. R. COCKERELL.

UNIV. OF MICH.

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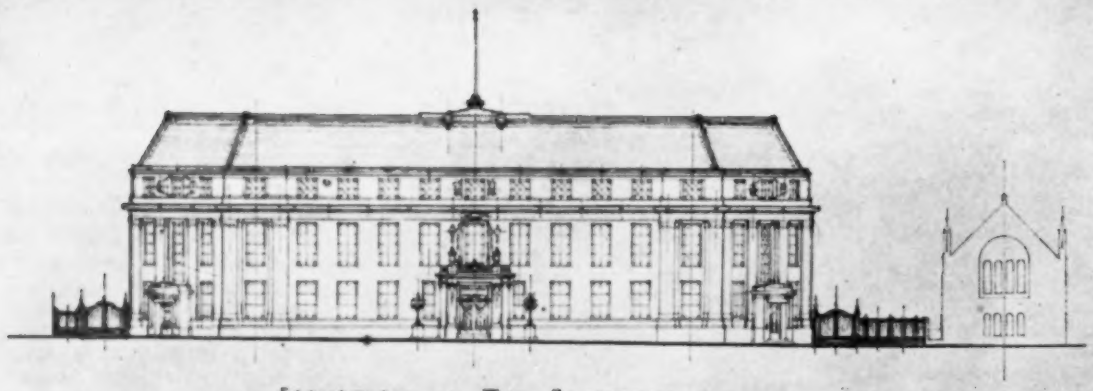
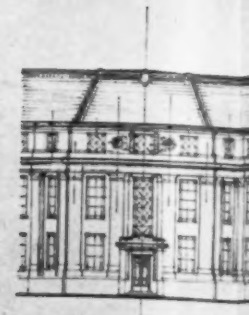
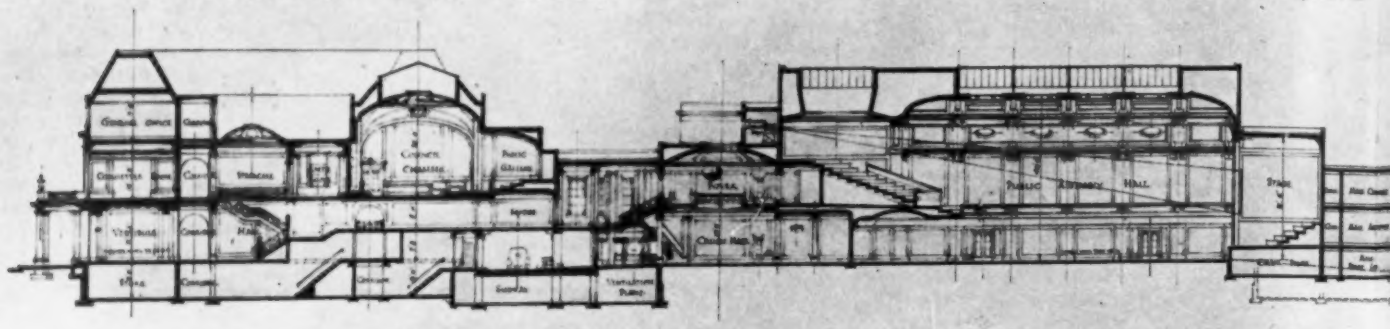


ELEVATION TO THE BROADWAY



ELEVATION TO QUEEN'S



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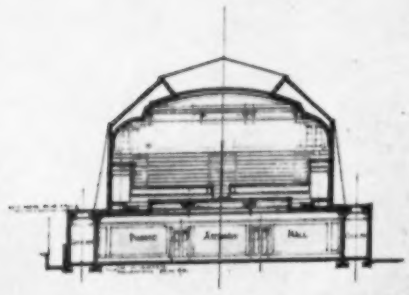
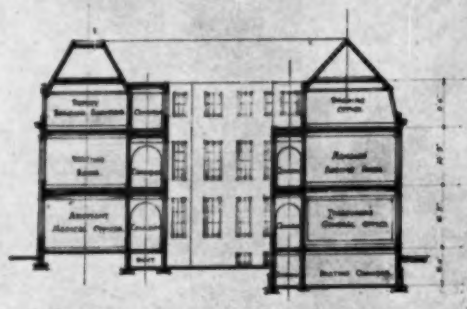


CROSS SECTION ON LINE BB



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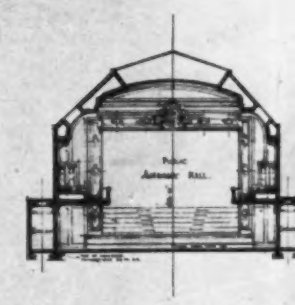

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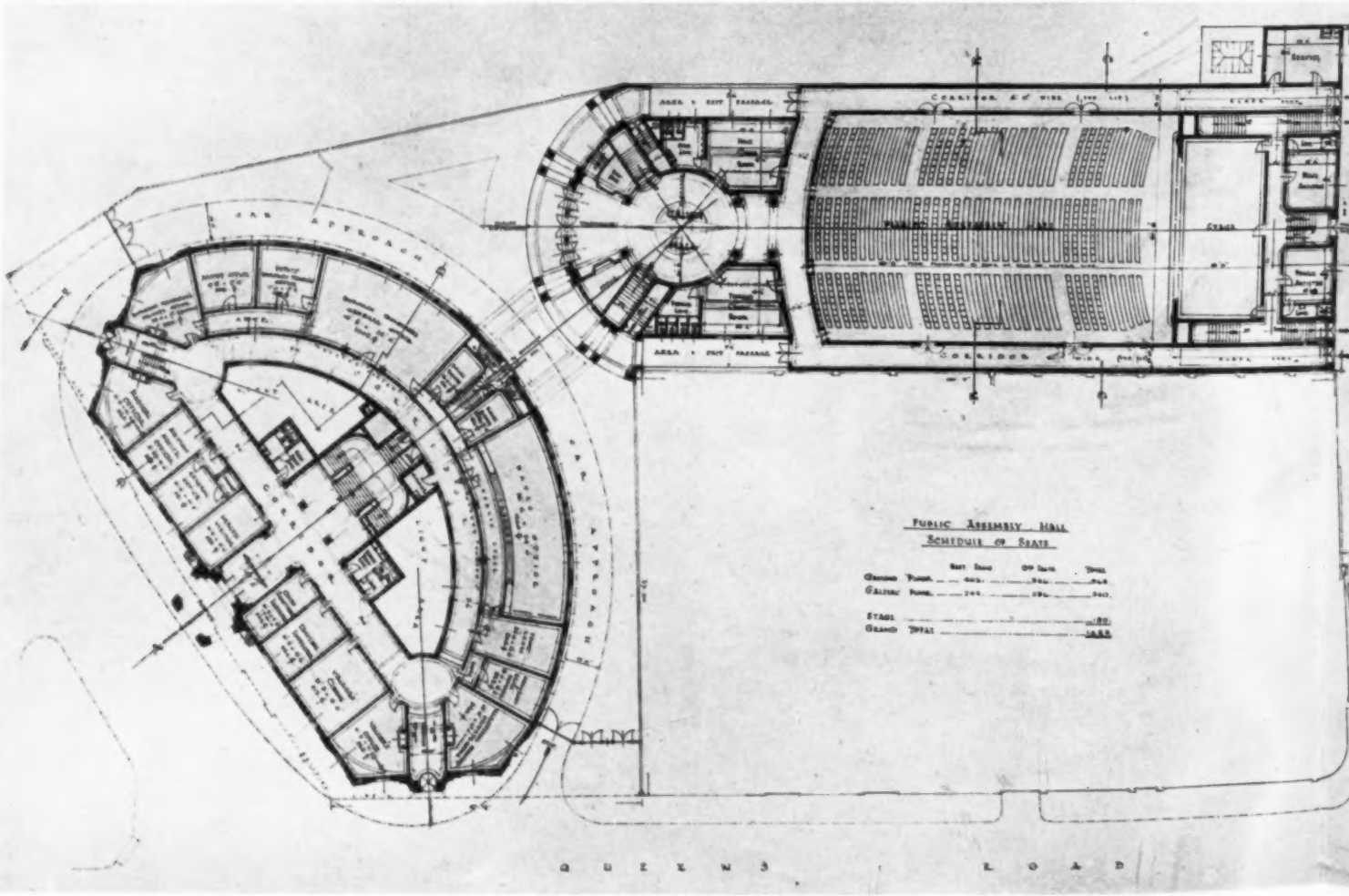

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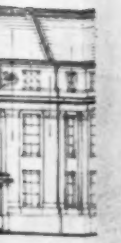
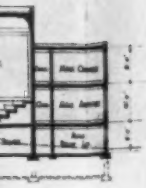
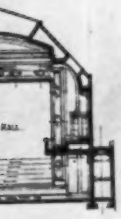
MESSRS. BRADSHAW GASS & H



QUEEN'S ROAD





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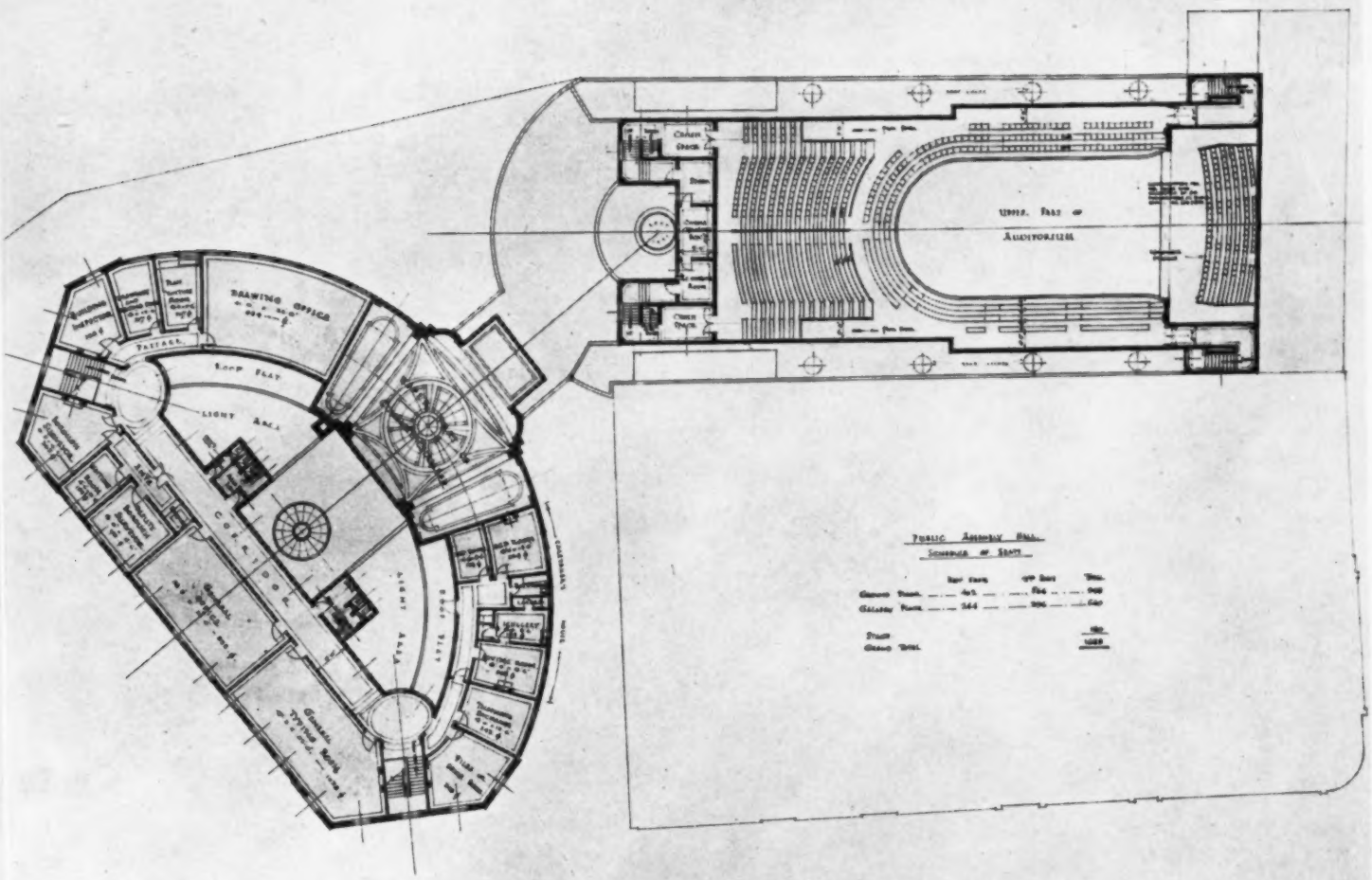
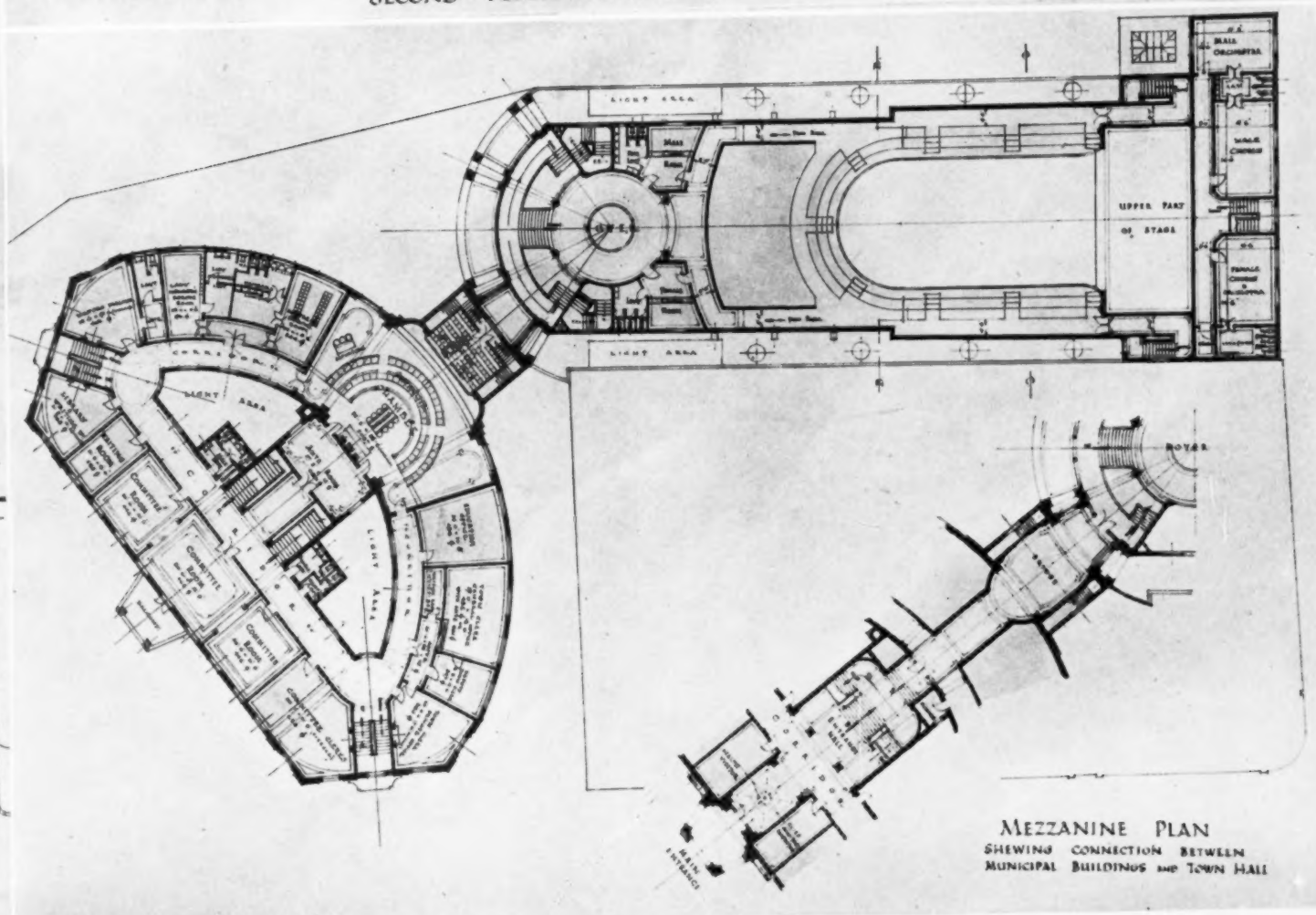
SCALE 16 FEET TO AN INCH



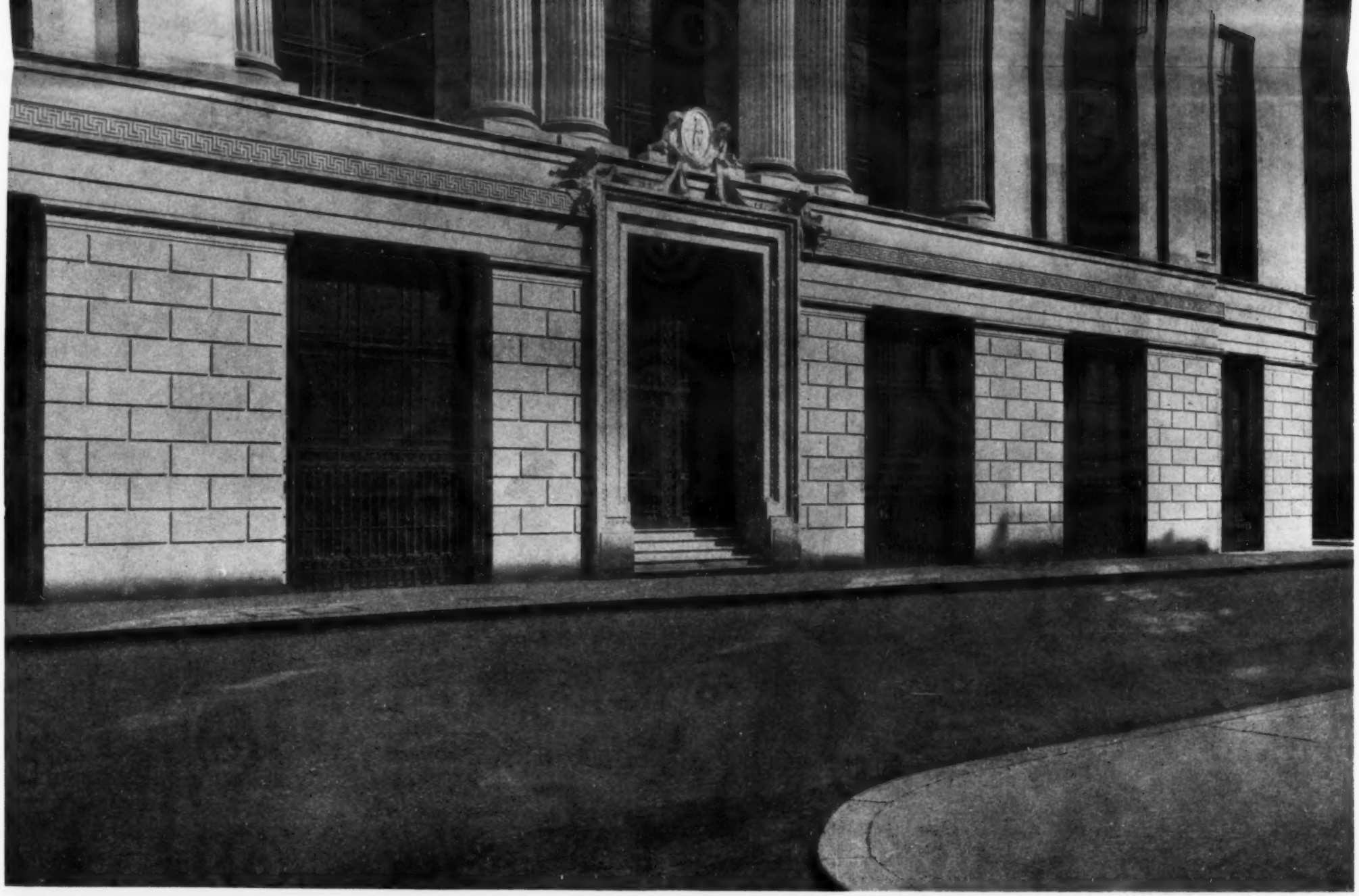
SECOND FLOOR PLAN



MEZZANINE PLAN
SHEWING CONNECTION BETWEEN MUNICIPAL BUILDINGS AND TOWN HALL

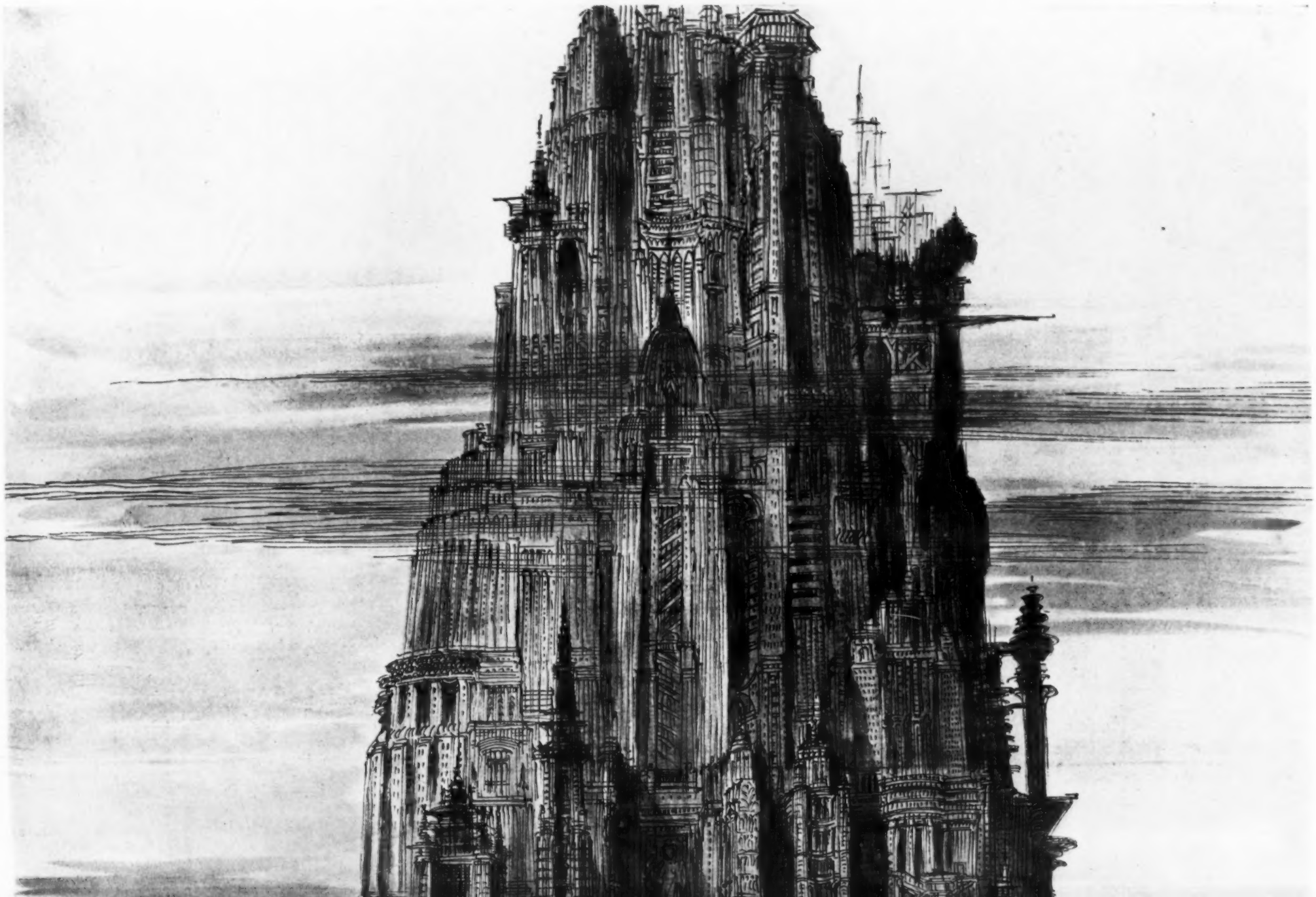
Buildings Competition, Wimbledon : Winning Design.

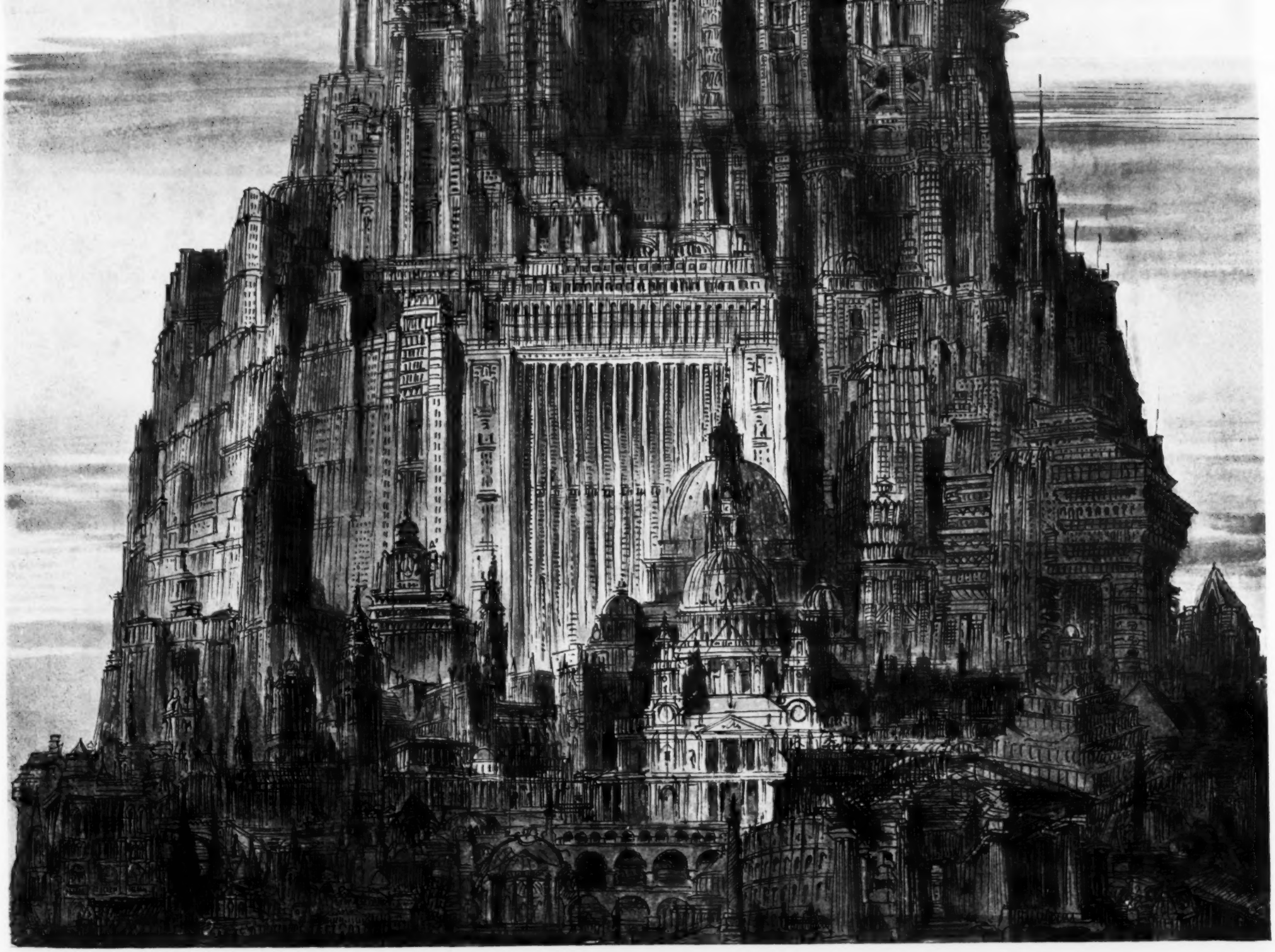
HAW GASS & HOPE, FF.R.I.B.A., Architects.



New Premises for the London Life Association, Ltd., King William Street, E.C.

Mr. W. Curtis Green, A.R.A. F.R.I.B.A., Architect.



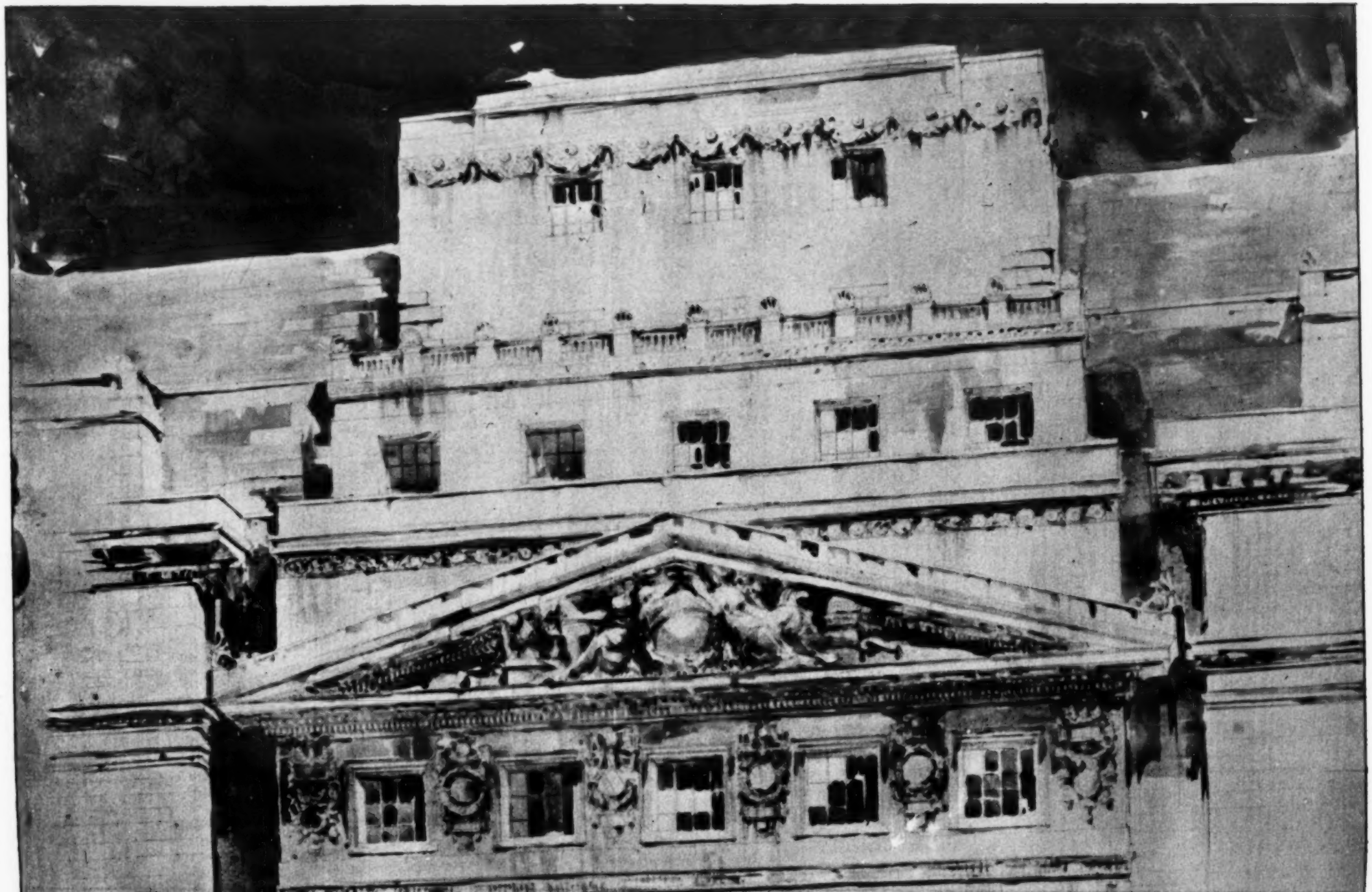


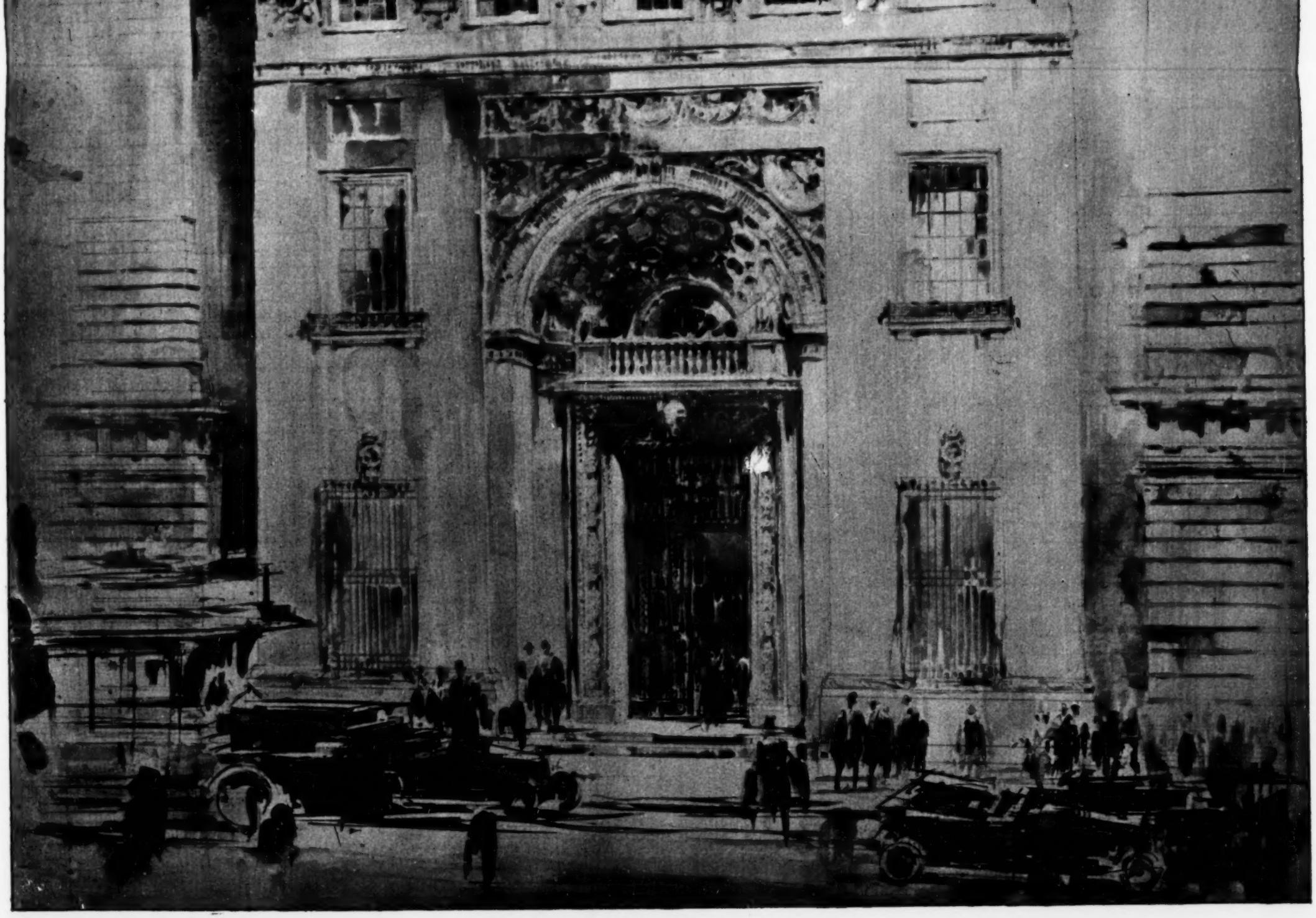
"The Tower of Babble": A Satire.

By Professor A. E. Richardson, F.R.I.B.A.

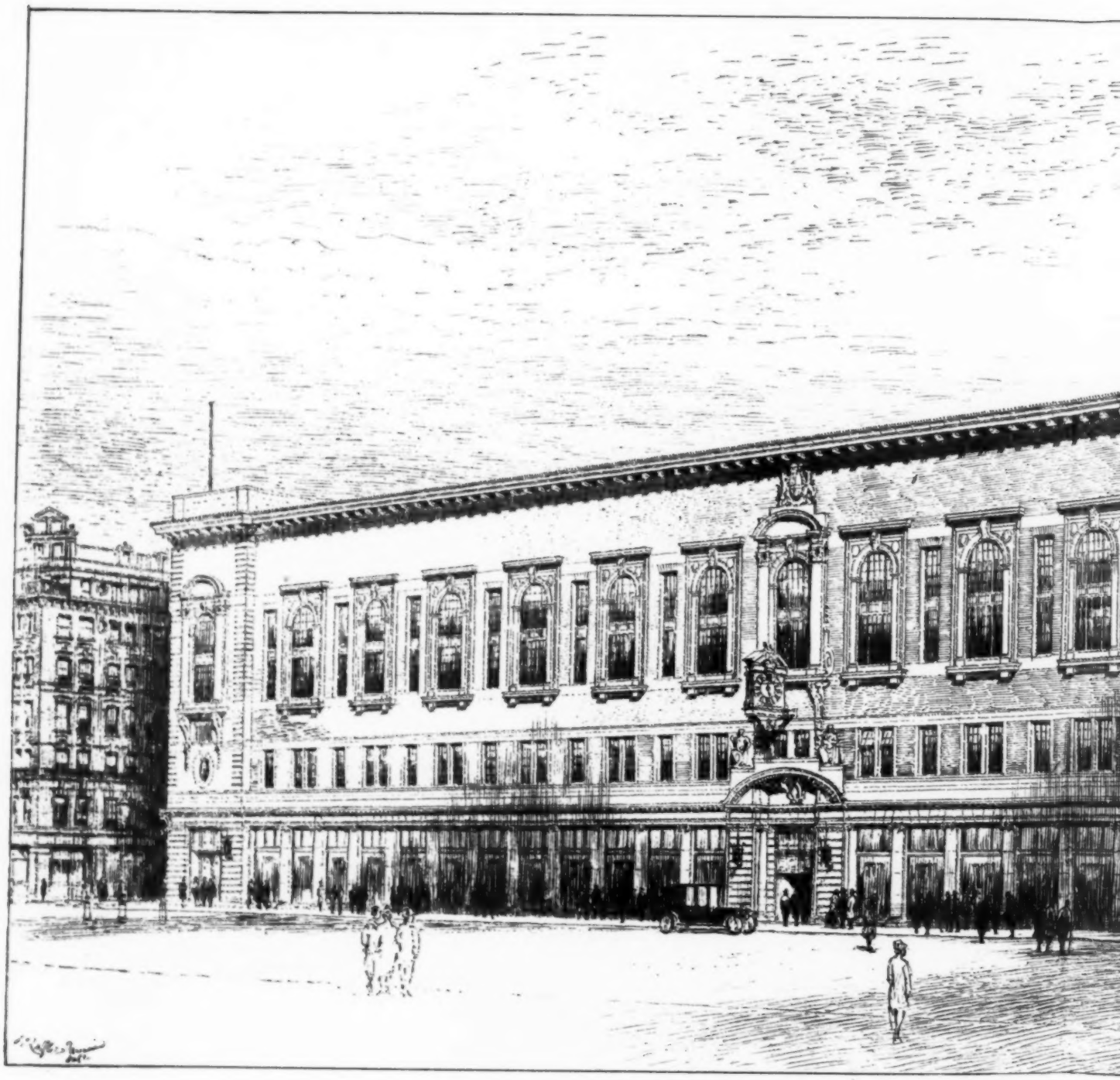
HEAD BUILDING FOR THE ROYAL MAIL STEAM PACKET COMPANY, LEADENHALL STREET, E.C.

Sir Edwin Cooper, Architect.

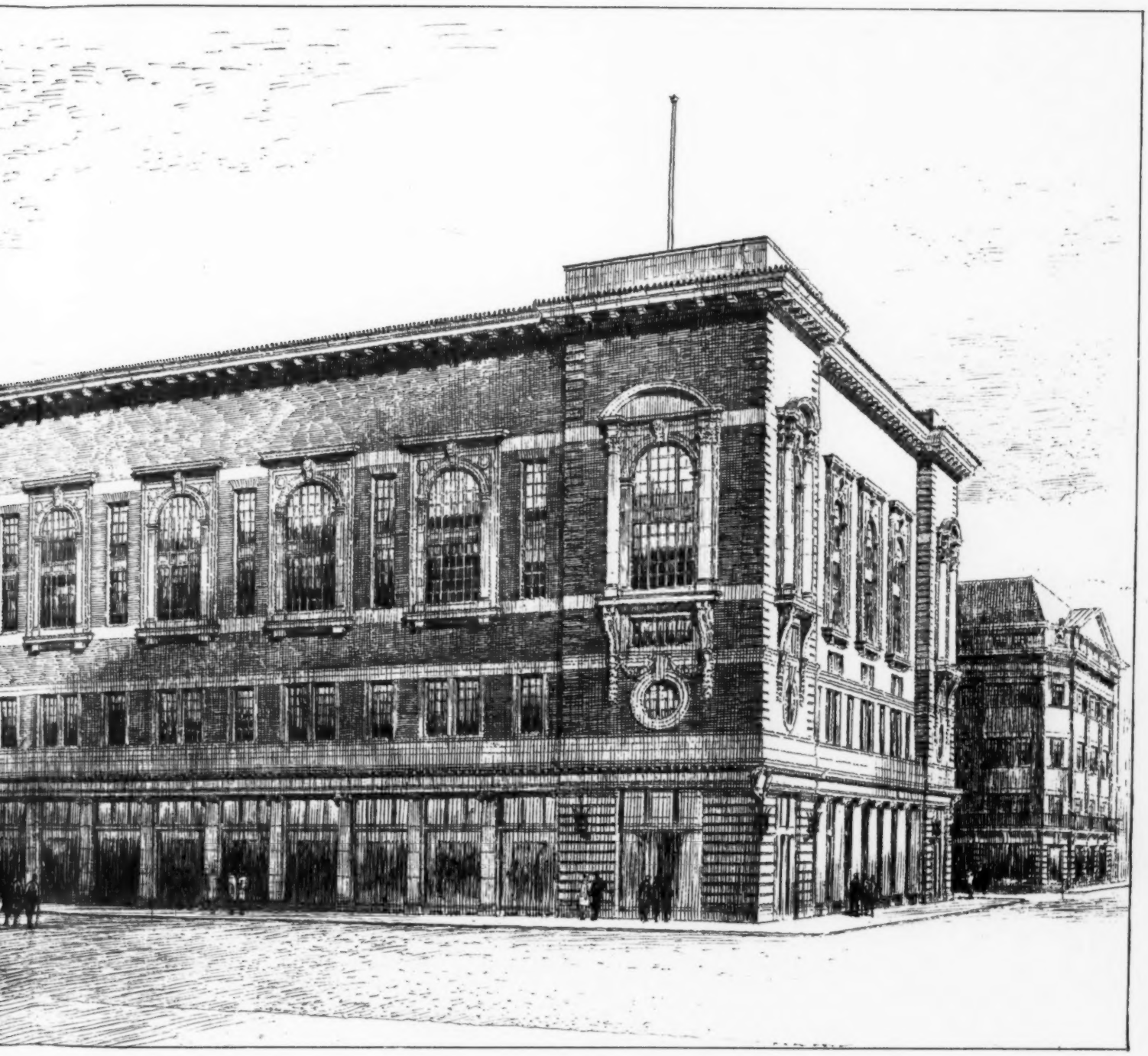




ENTRANCE TO "LLOYDS" FROM LEADENHALL STREET, E.C.
Sir Edwin Cooper, Architect.



THE NEW ARMY & NAVY STOR
Sir Aston Webb &



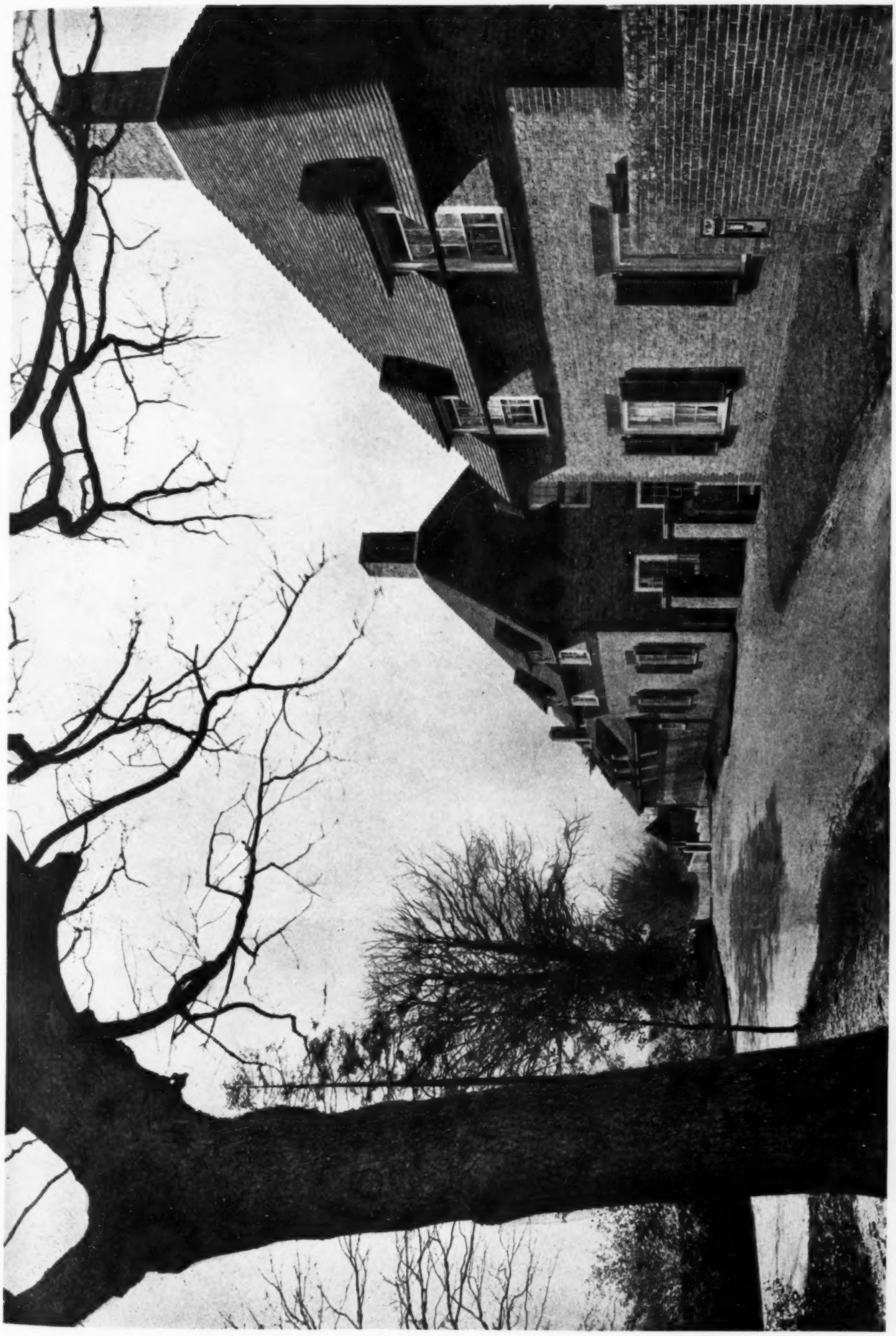
NAVY STORES, VICTORIA STREET, S.W.
n Webb & Son, Architects.

Port of London Authority Offices, West India Dock.

SIR EDWIN COOPER, Architect.

The Star and Garter Home, Sandgate, Kent.
Sir Edwin Cooper, Architect.

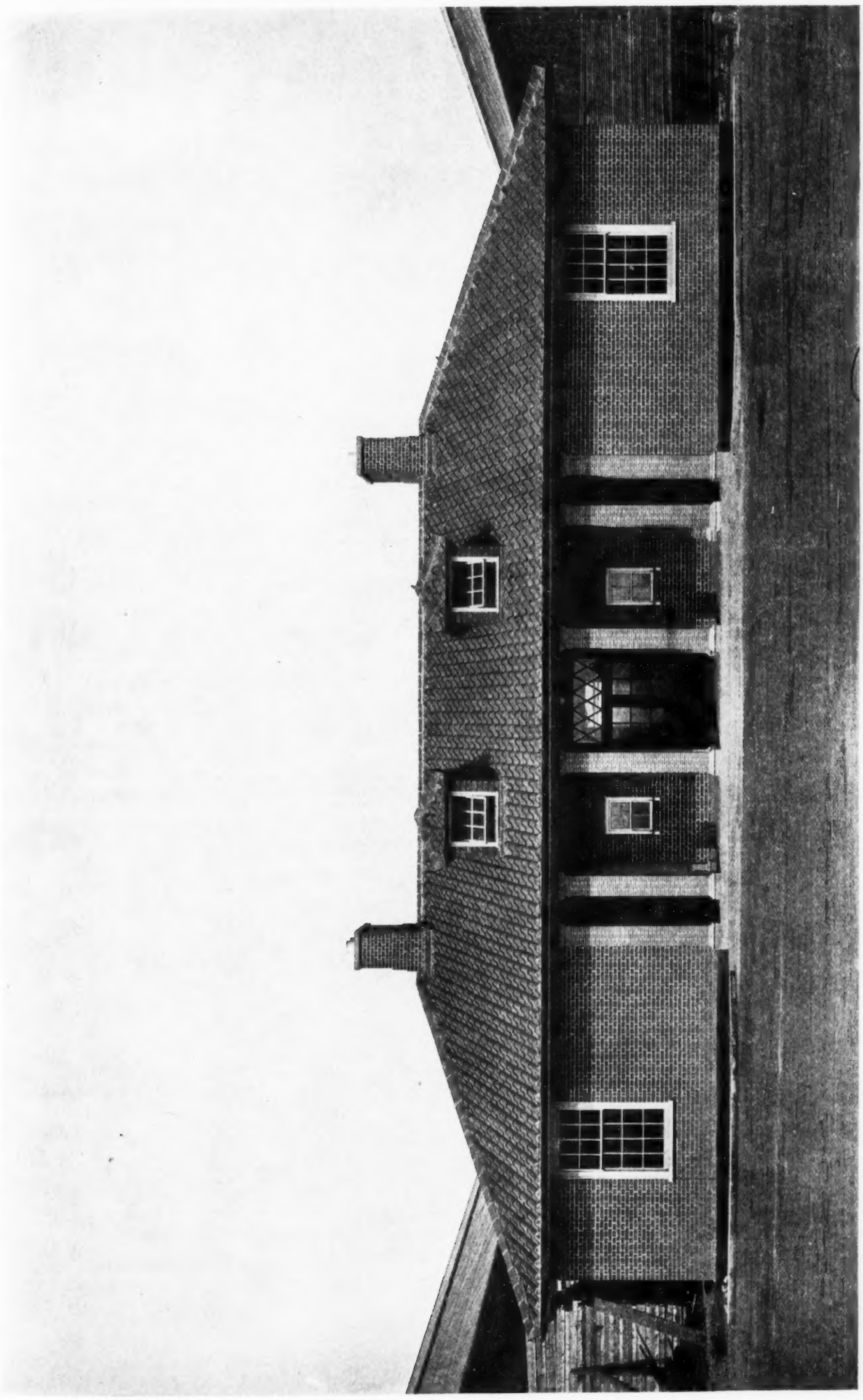
UNIV. OF MICH.



Roadside Cottages in Sussex.

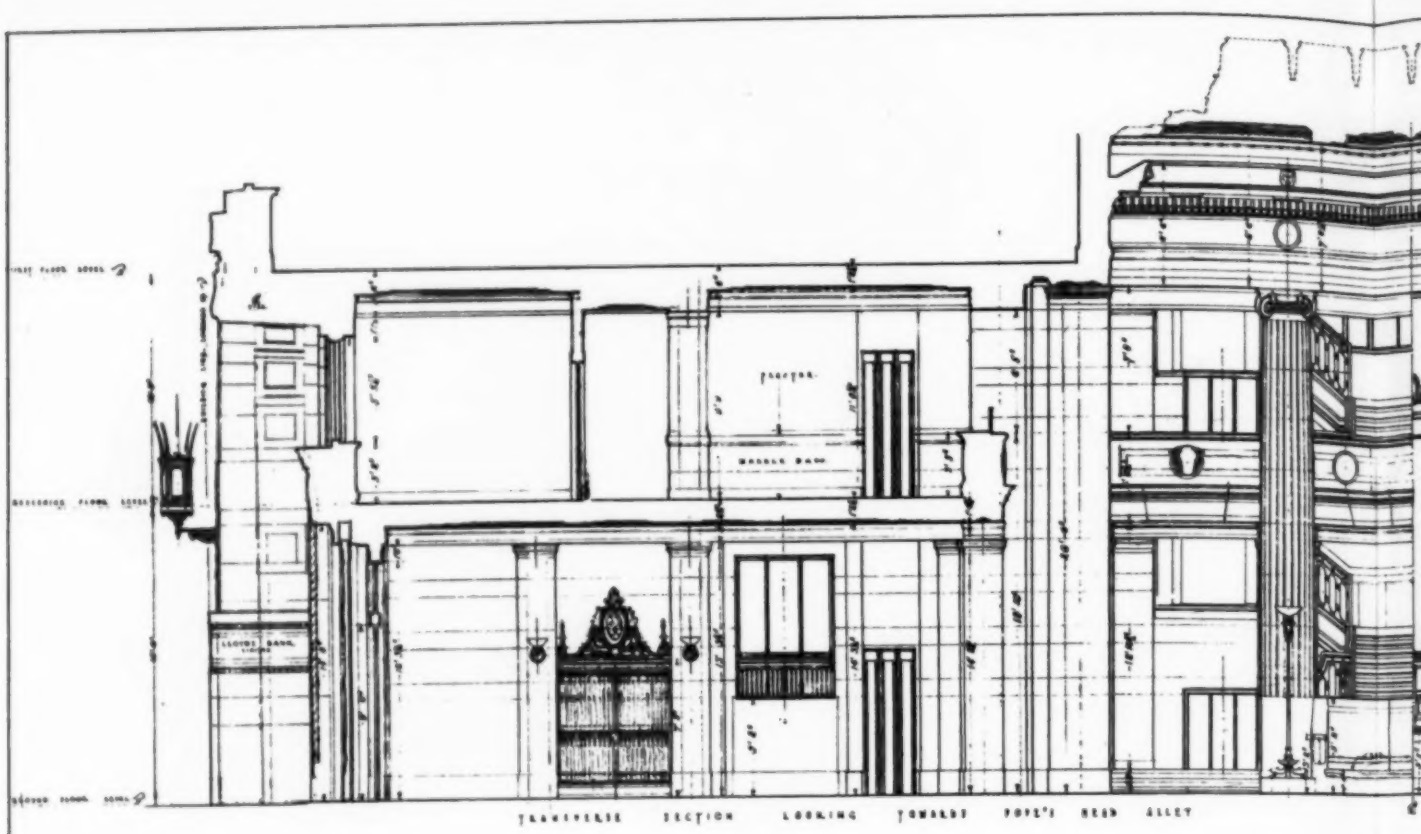
Sir Edwin Cooper, Architect.

UNIV. OF CALIF.

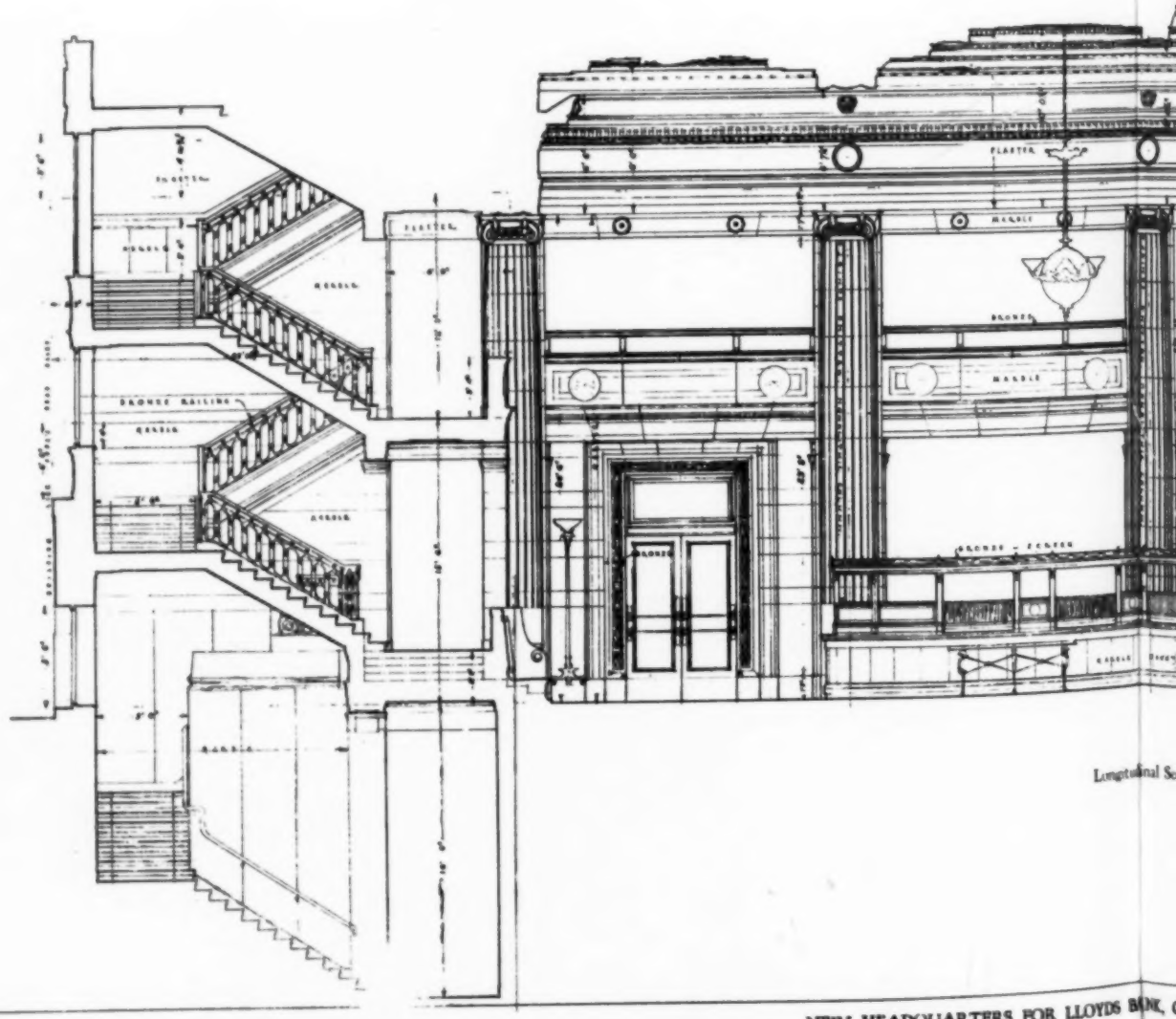


Port of London Office for Timber Trade, Surrey Dock.

Sir Edwin Cooper, Architect.

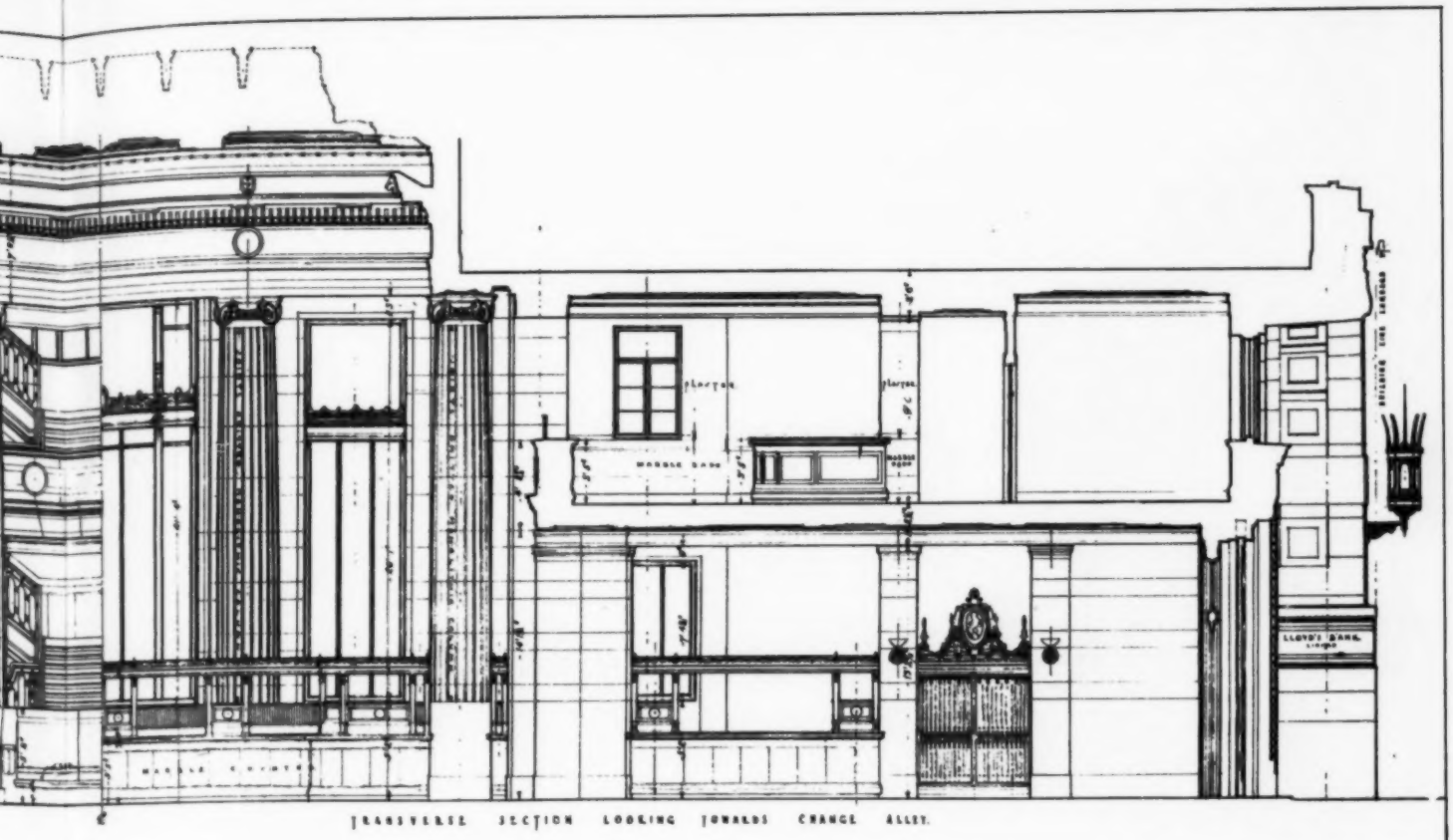


Transverse Section with Ma

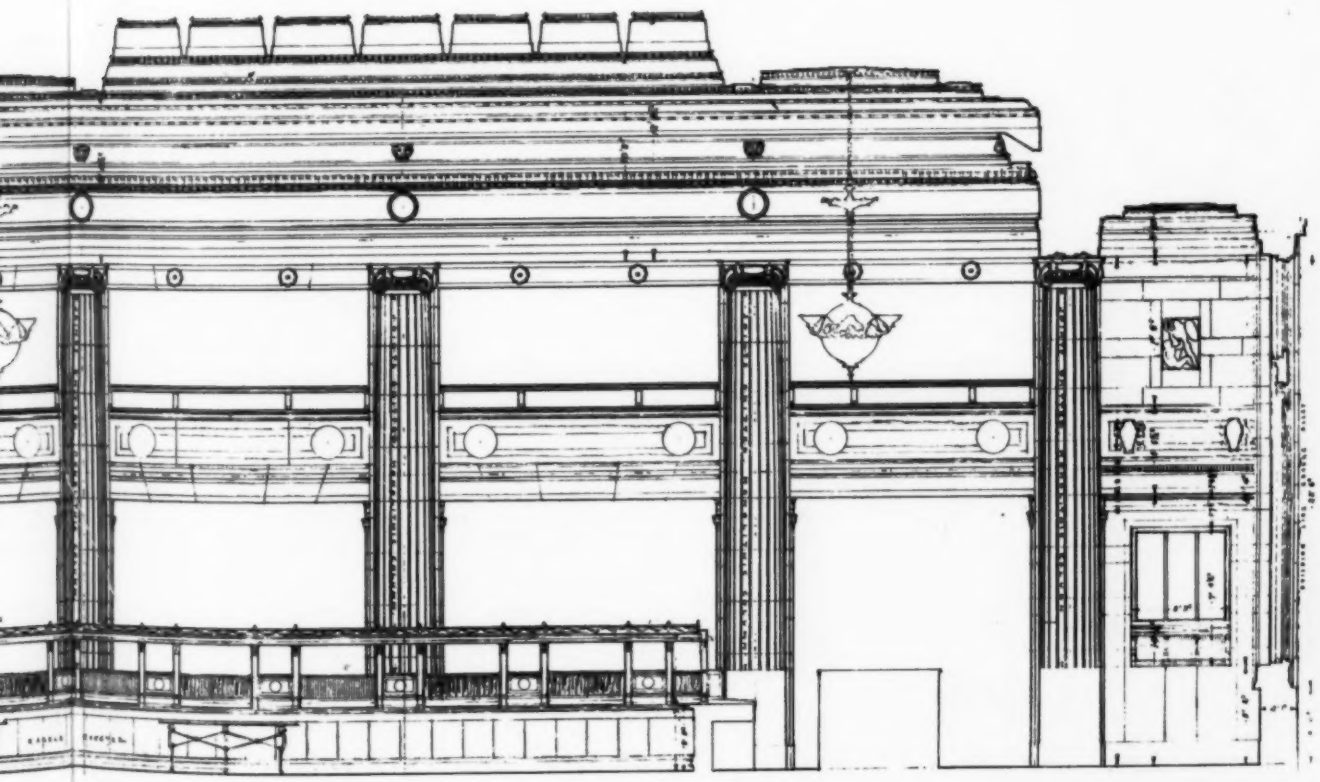


Longitudinal Se

NEW HEADQUARTERS FOR LLOYDS BANK,
Sir John Burnet & Partners, and Messrs. Campbell Jo



e Section with Main Banking Hall.

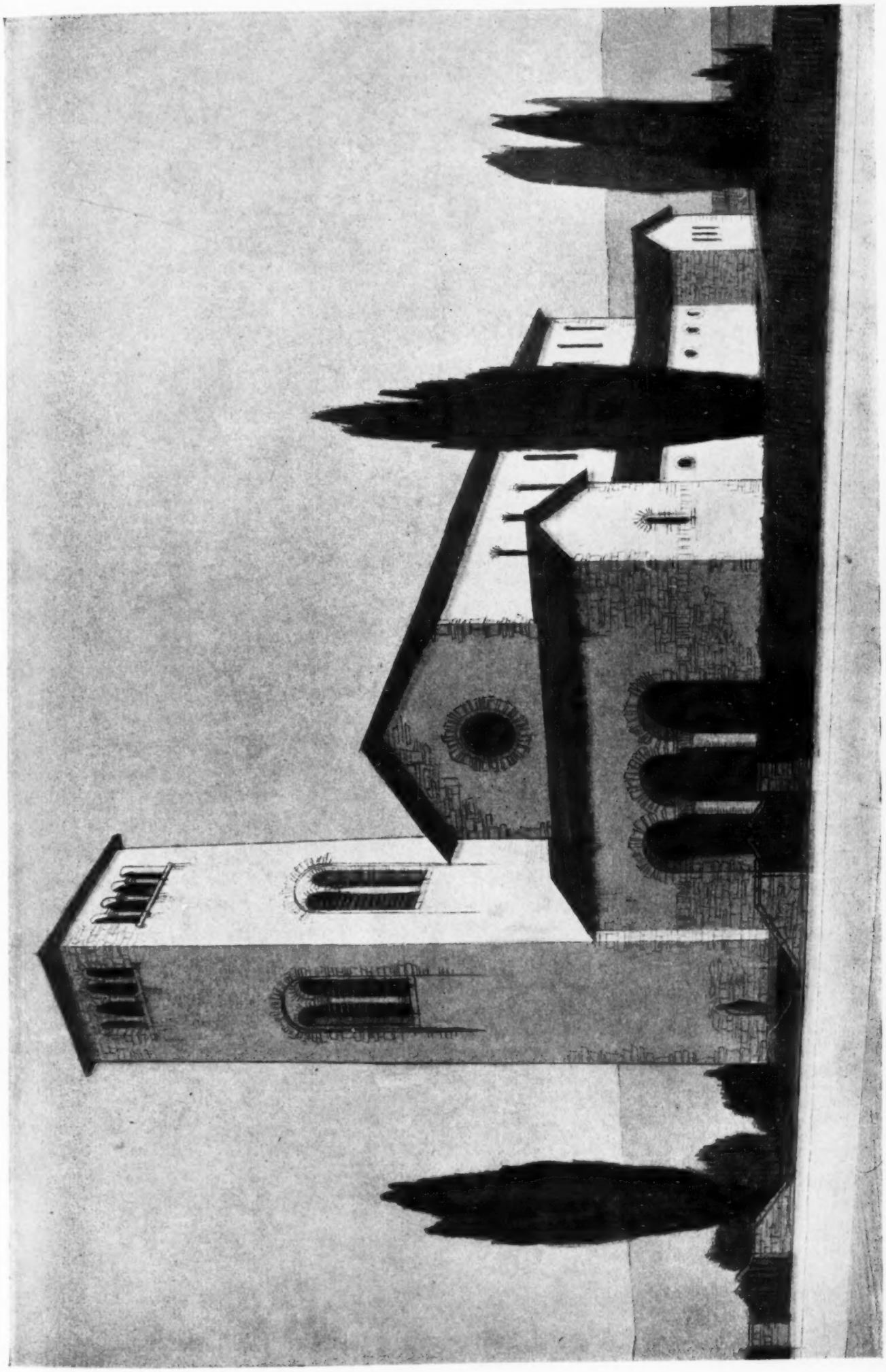


Longitudinal Section.

LLOYDS BANK, CORNHILL AND LOMBARD STREET.

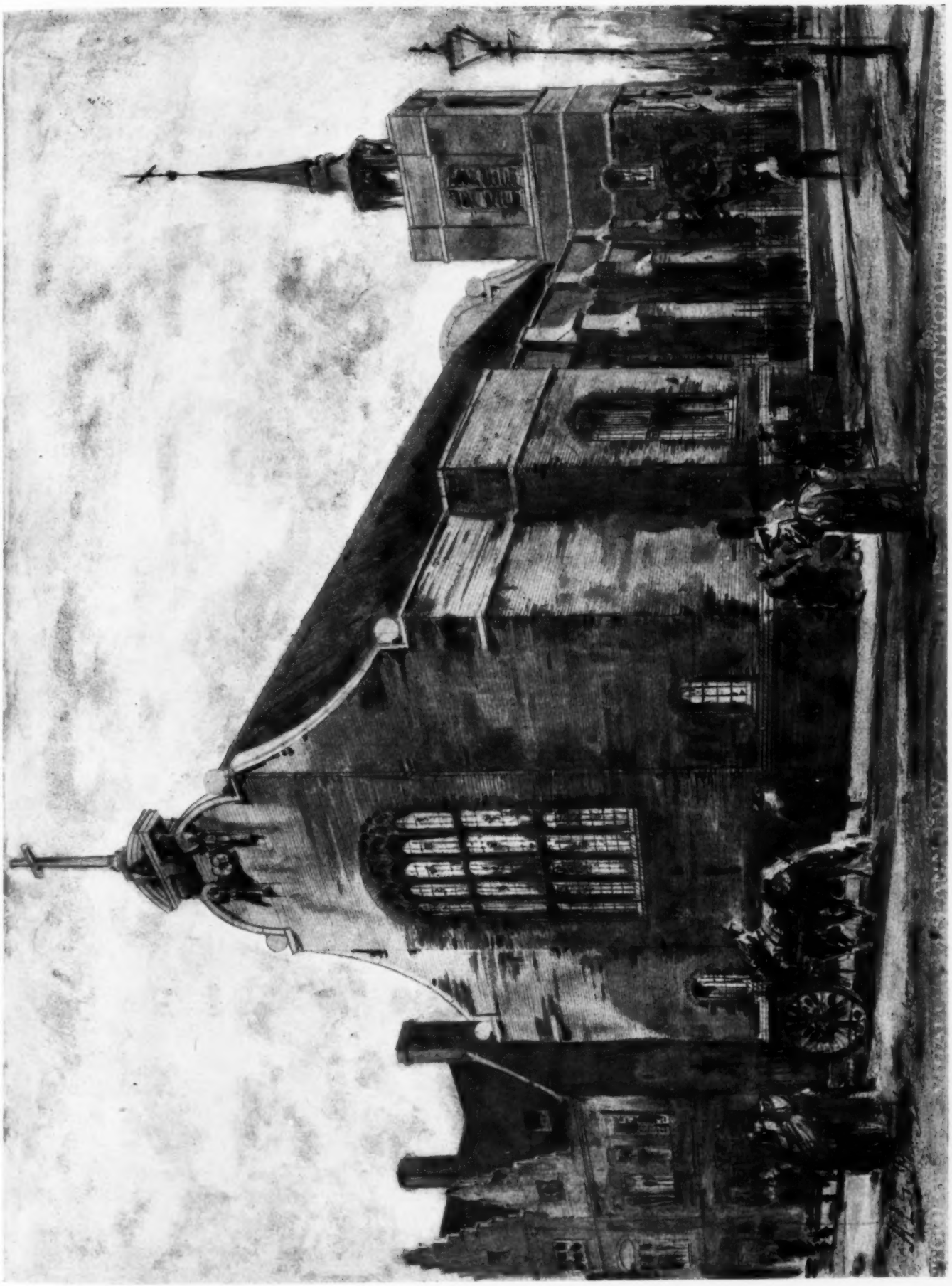
rs. Campbell Jones, Sons & Smithers, Associated Architects.

UNIV. OF ILLINOIS



Church of Our Lady and St. Alphege, Bath.
Sir Giles Gilbert Scott, R.A., F.R.I.B.A., Architect

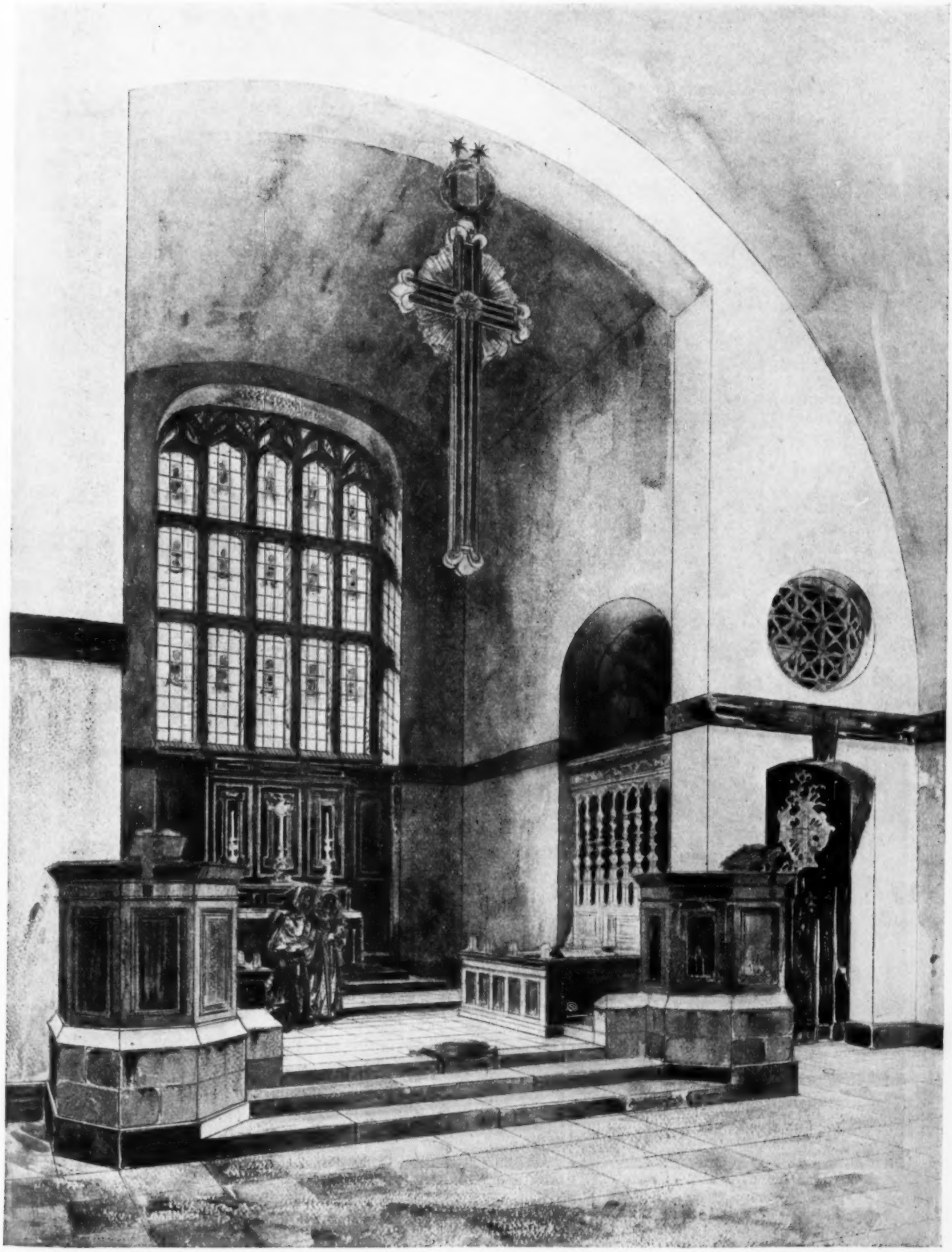
UNIV. OF MICH.



Memorial Church, Ypres.

Sir Reginald Blomfield, R.A., & Sons, Architects.

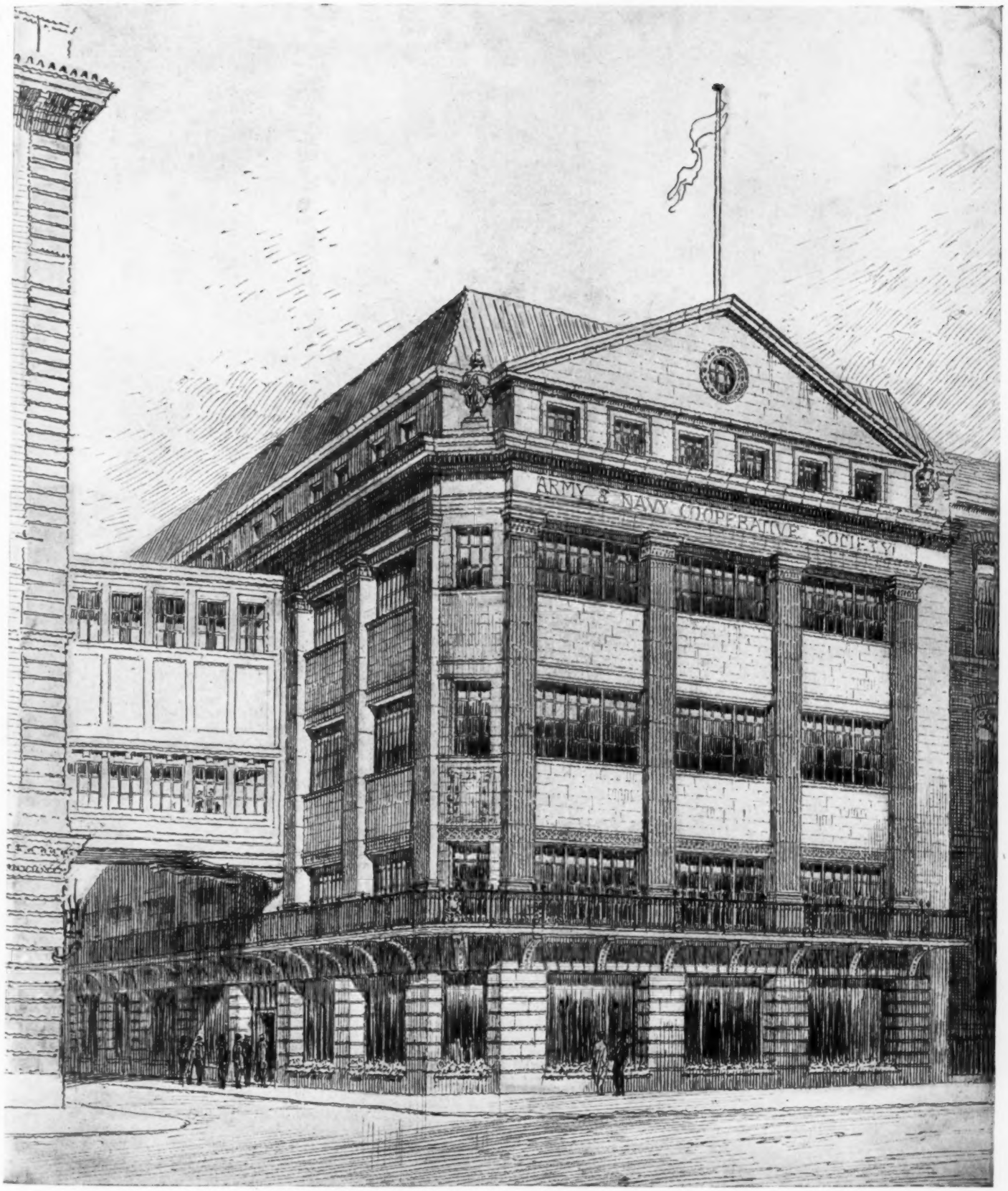
UNIV OF MICH.



Memorial Church, Ypres : The Chancel.

SIR REGINALD BLOMFIELD, R.A., & SON, Architects.

UNIV. OF MICH.



The Army and Navy Stores, Westminster: Francis Street End of New Howick Place Block.

SIR ASTON WEBB & SON, Architects.

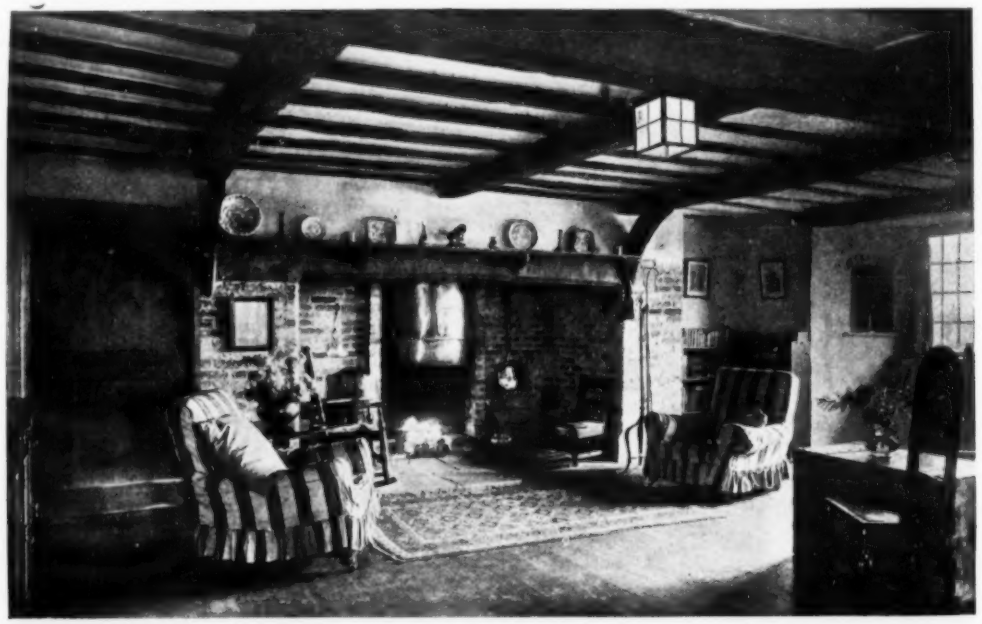
UNIV OF MICH.

GARDEN FRONT.

WEST FRONT.

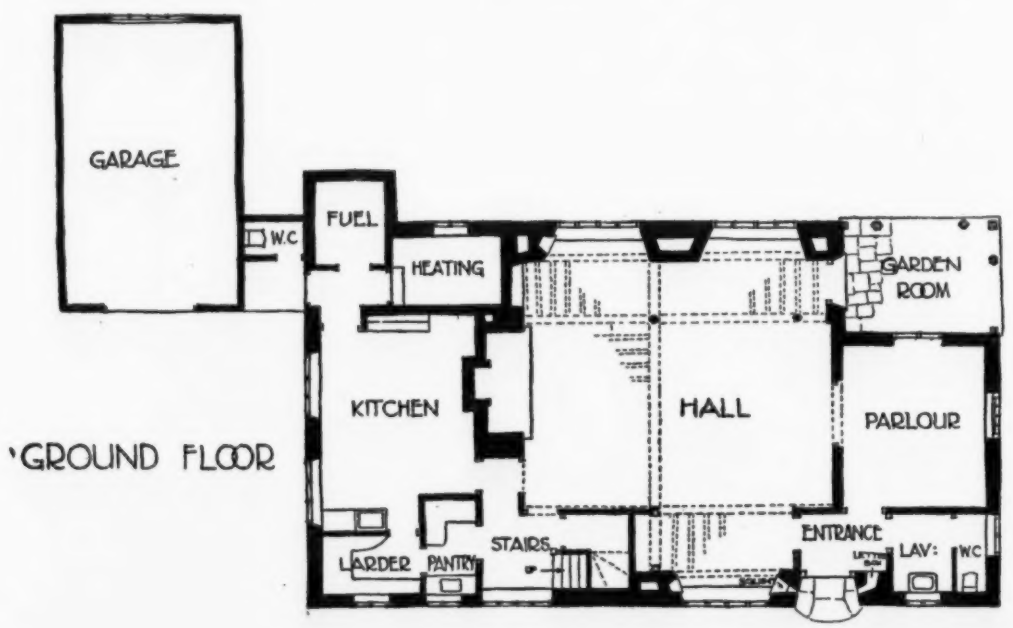
House in Huntingdon Road, Cambridge. MESSRS. BAILLIE SCOTT & BERESFORD, Architects.

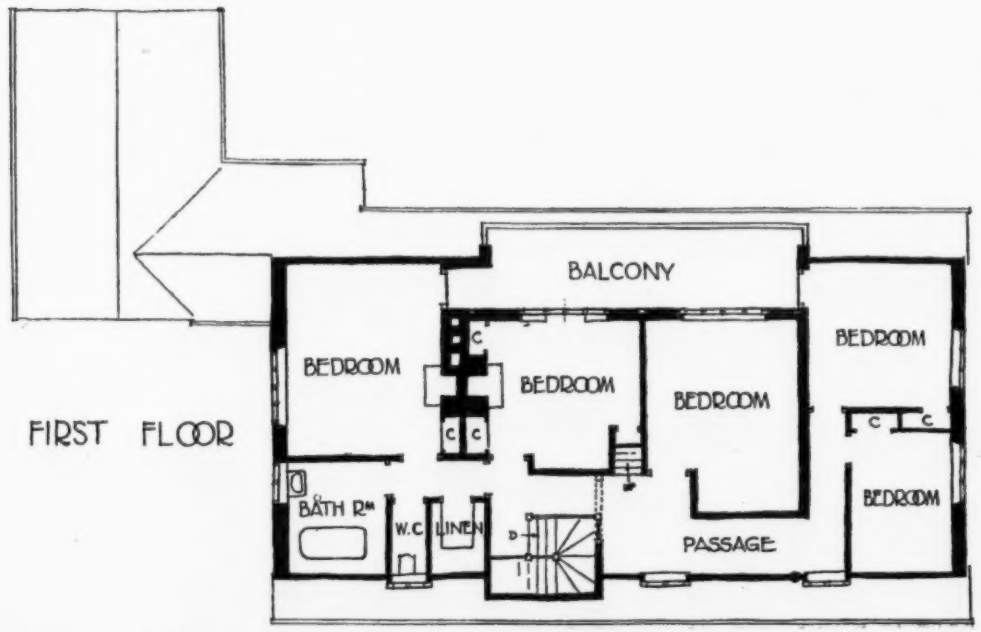
UNIV. OF MICH.



Living Room.

Dining Room.

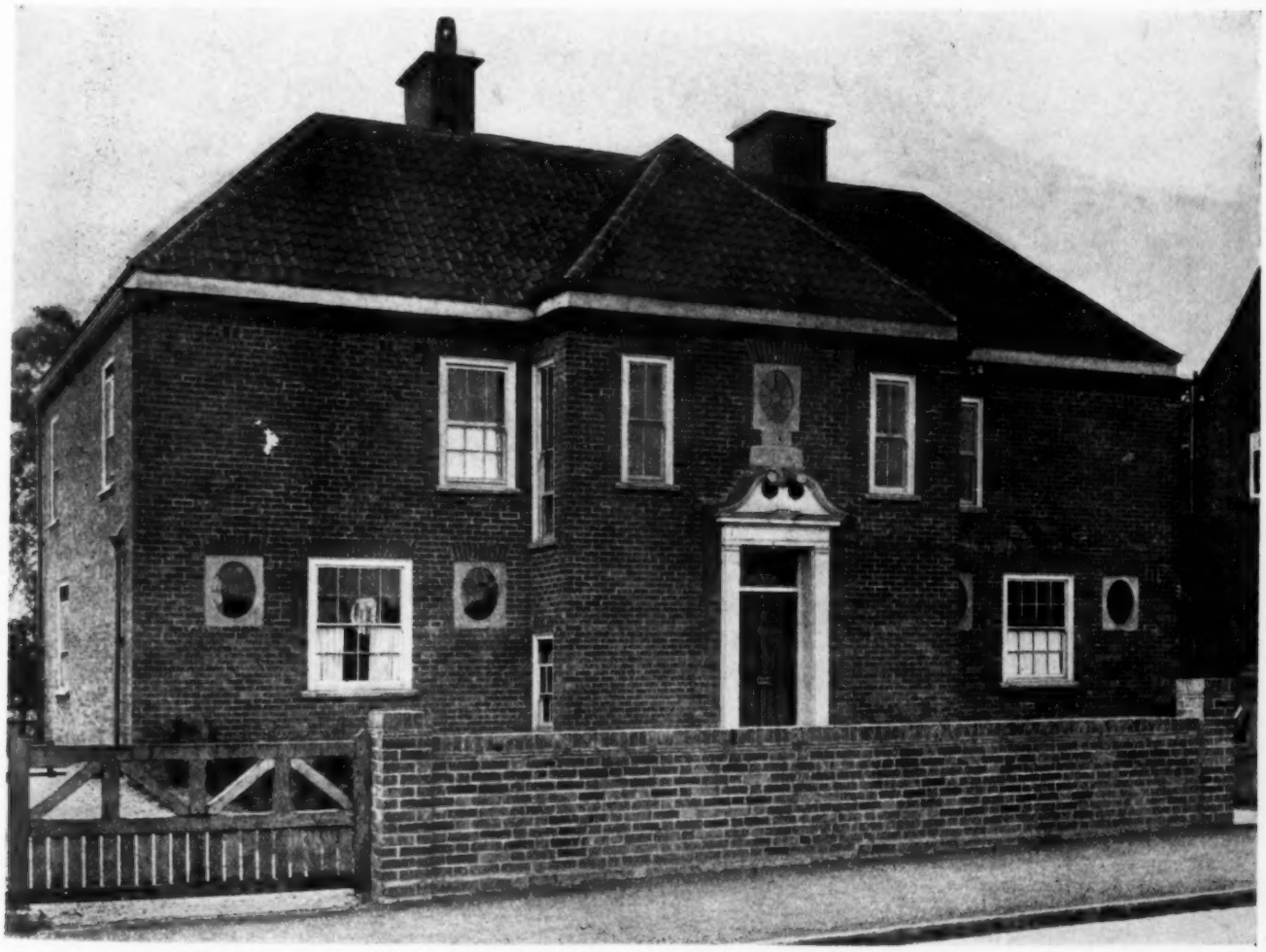




House in Huntingdon Road, Cambridge.

Messrs. Baillie Scott & Beresford, Architects.

GARDEN FRONT.



ENTRANCE FRONT.

"Storeys Way," Cambridge.

MESSRS. BAILLIE SCOTT & BERESFORD, Architects.

UNIV. OF MICH.

Drawing Room.

"Storeys Way," Cambridge.

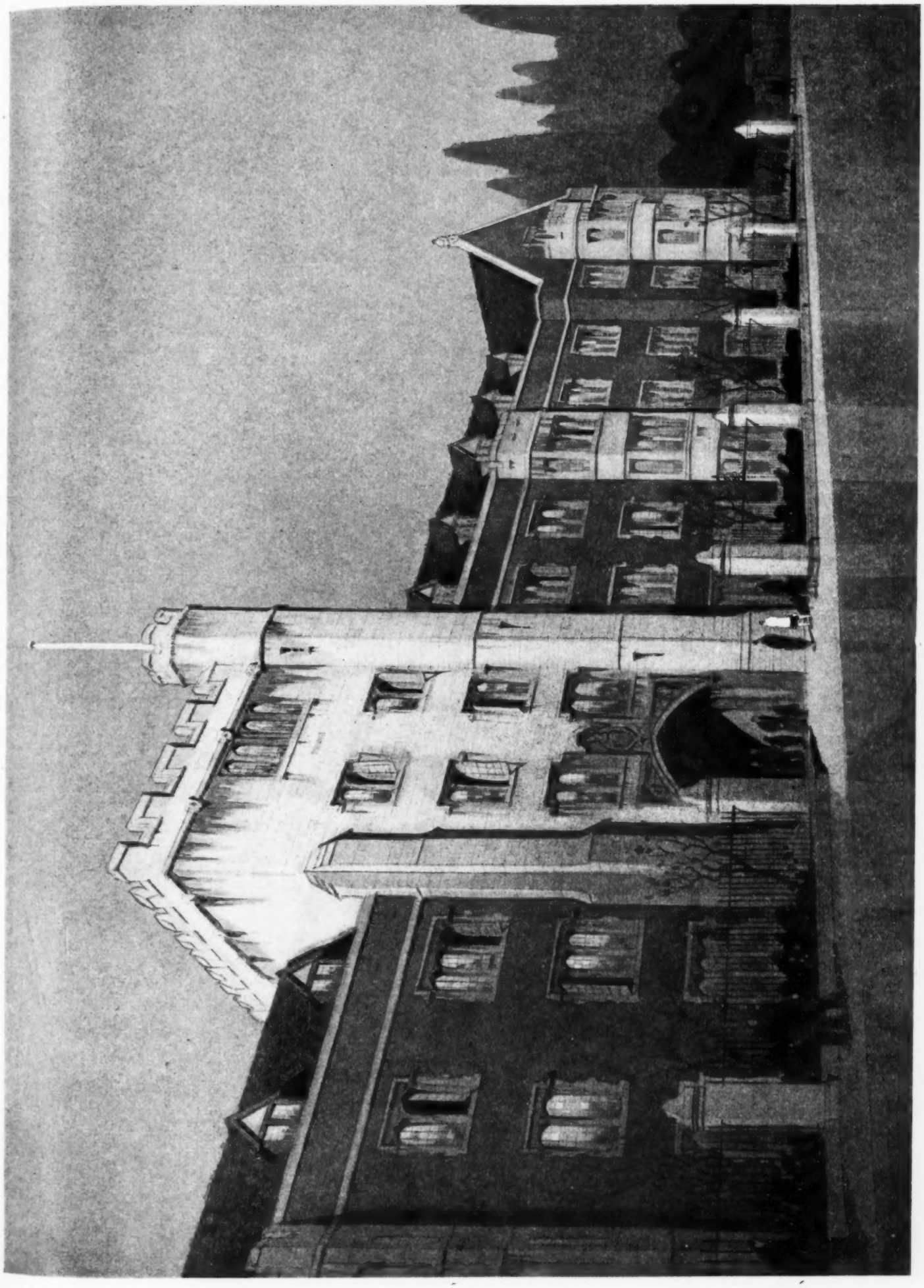
Messrs. Baillie Scott & Beresford, Architects.

UNIV. OF ILL.

New Buildings and Gate House, Trinity Hall, Cambridge.

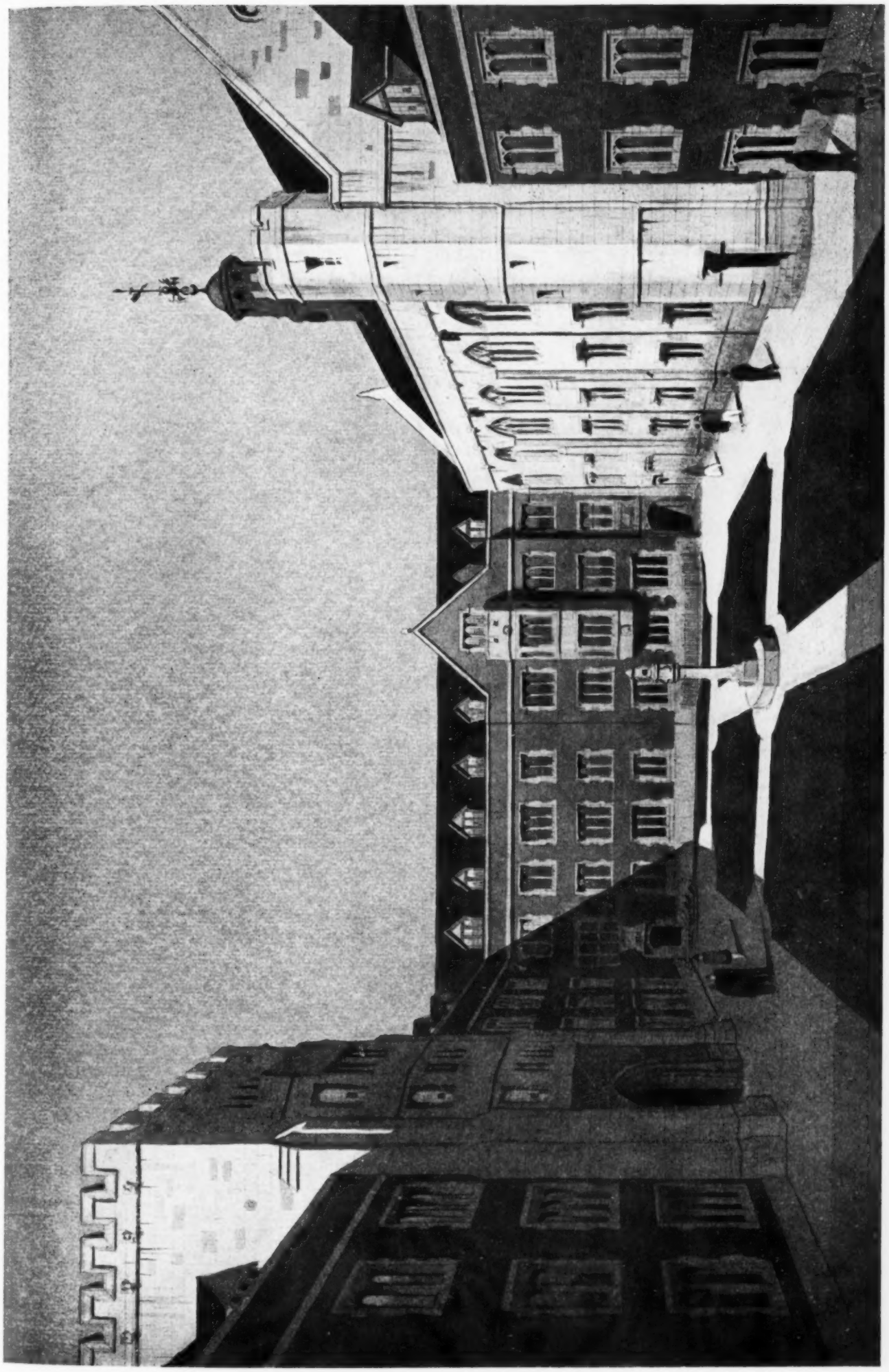
MESSRS. HOARE AND WHEELER, FF.R.I.B.A., Architects.

UNIV. OF MICH.



Cité Universitaire de Paris: British Hostel. View of South Front from the South-West.
Mr. E. P. Warren, F.S.A., F.R.I.B.A., Architect.

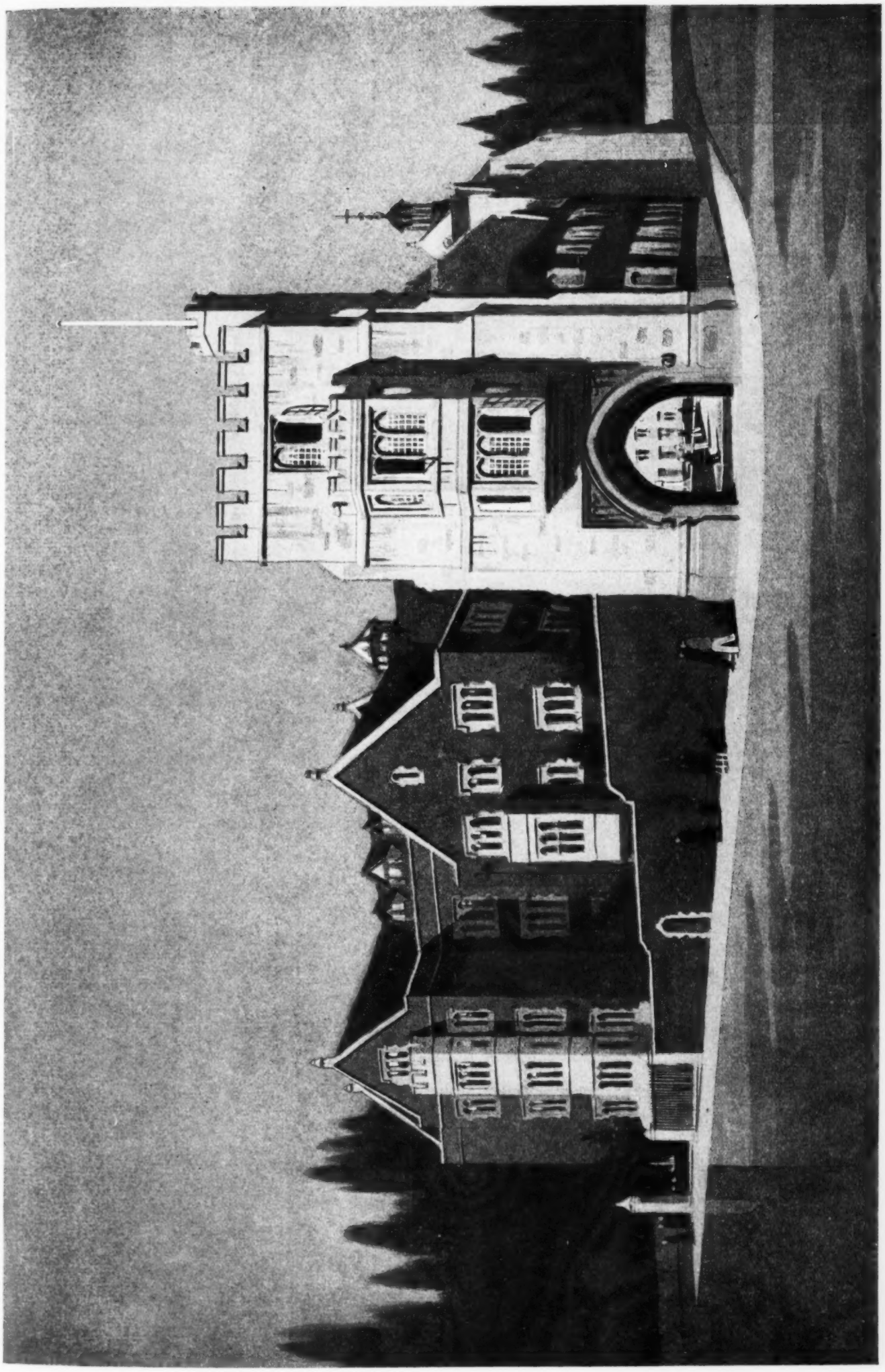
UNIV. OF MICH.



Cité Universitaire de Paris : British Hostel. View of Quadrangle from the East.

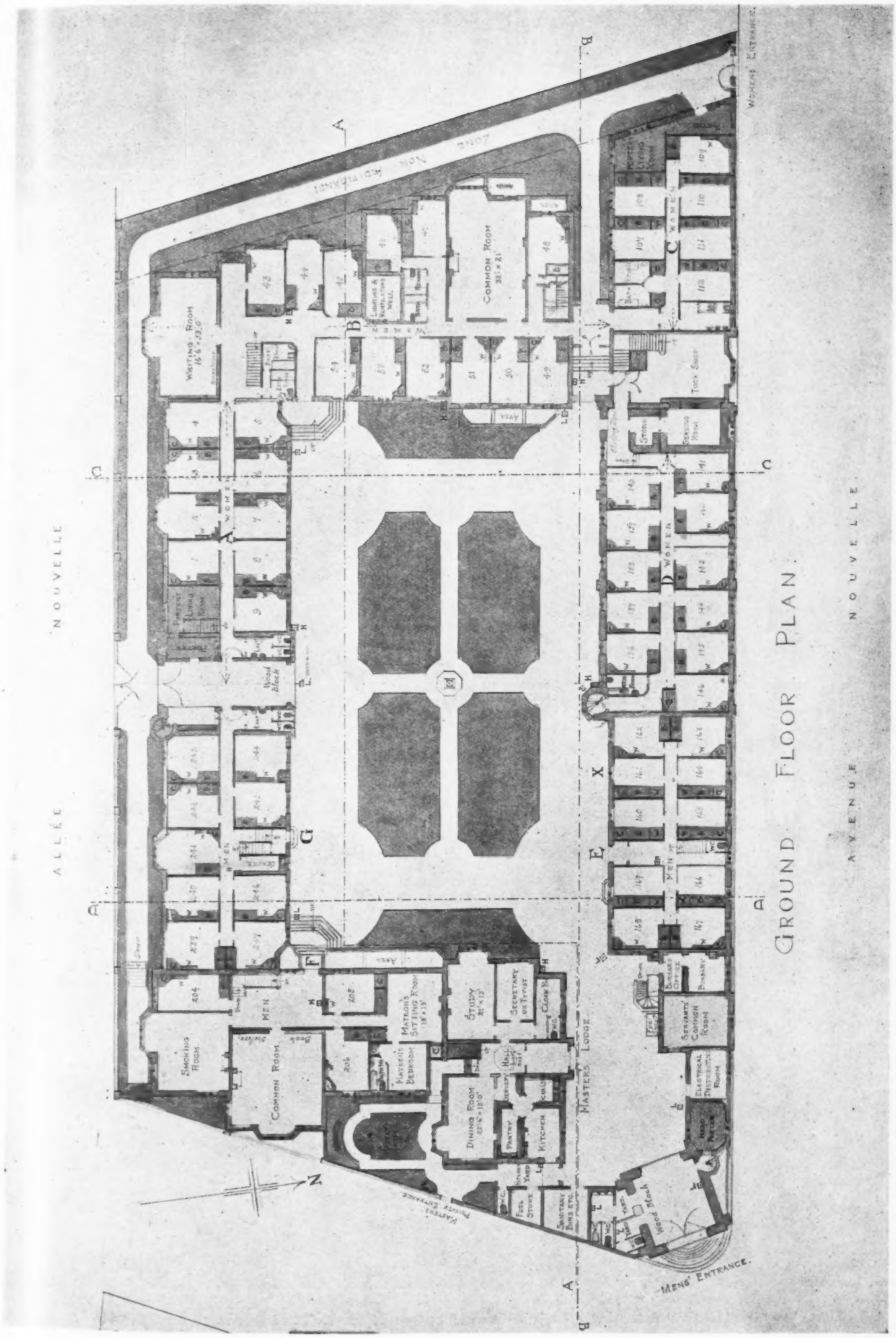
MR. E. P. WARREN, F.S.A., F.R.I.B.A., Architect.

UNIV. OF MICH.



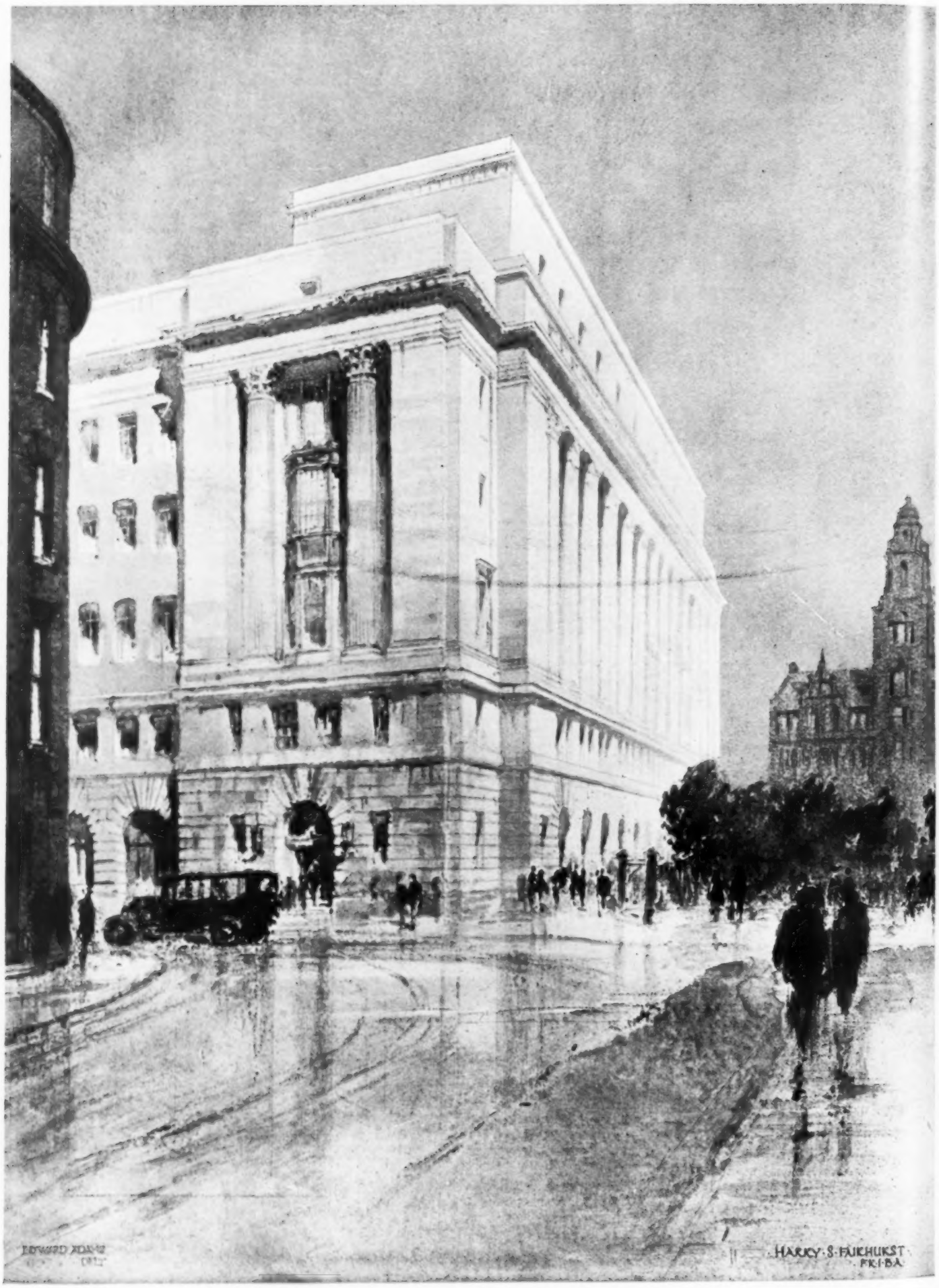
Cité Universitaire de Paris: British Hostel. View of the North-East Entrance.
Mr. E. P. Warren, F.S.A., F.R.I.B.A., Architect.

UNIV. OF MICH.



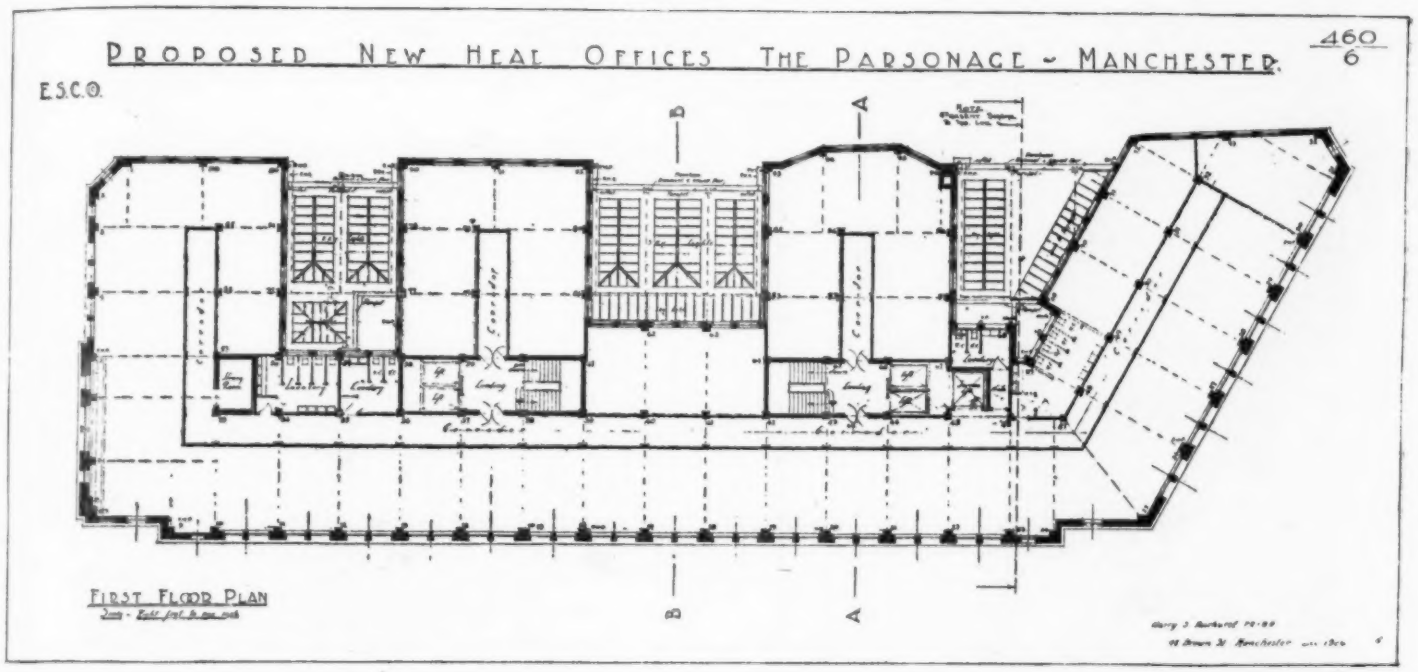
Cité Universitaire de Paris : British Hostel.

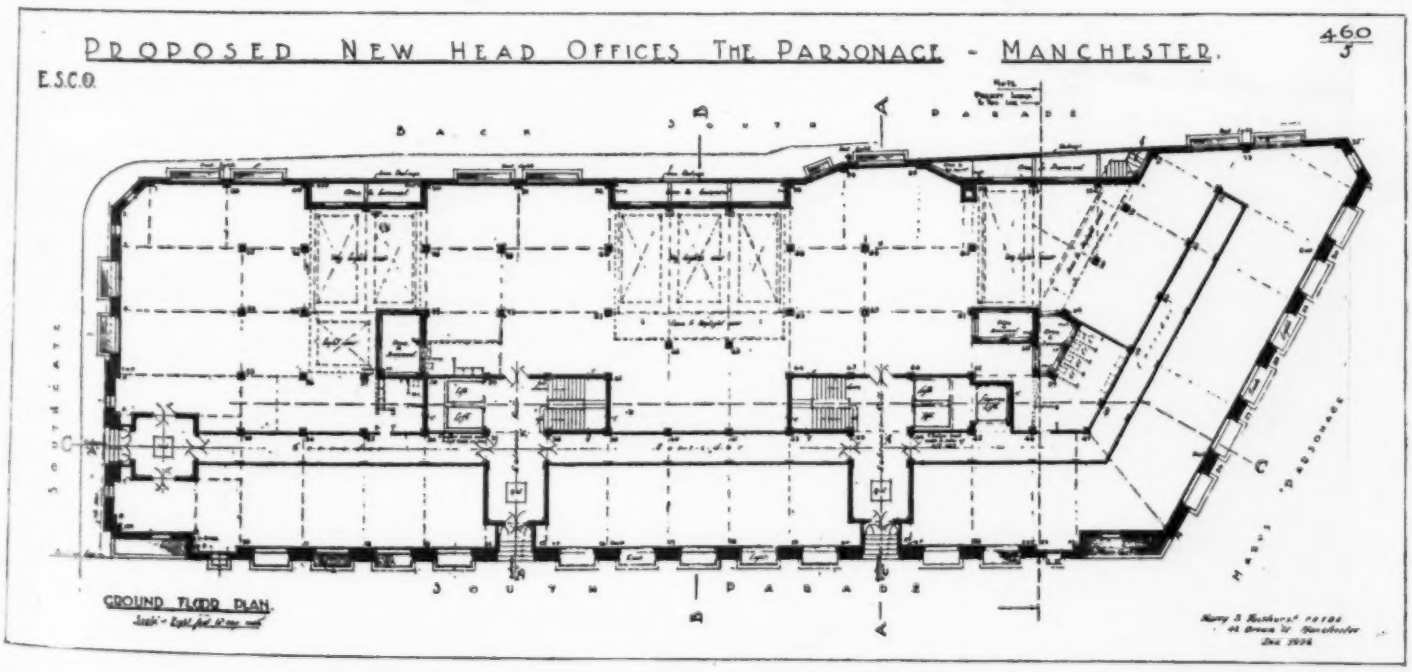
MR. E. P. WARREN, F.S.A., F.R.I.B.A., Architect.



Proposed New Head Offices for the English Sewing Cotton Co., Ltd., The Parsonage, Manchester.

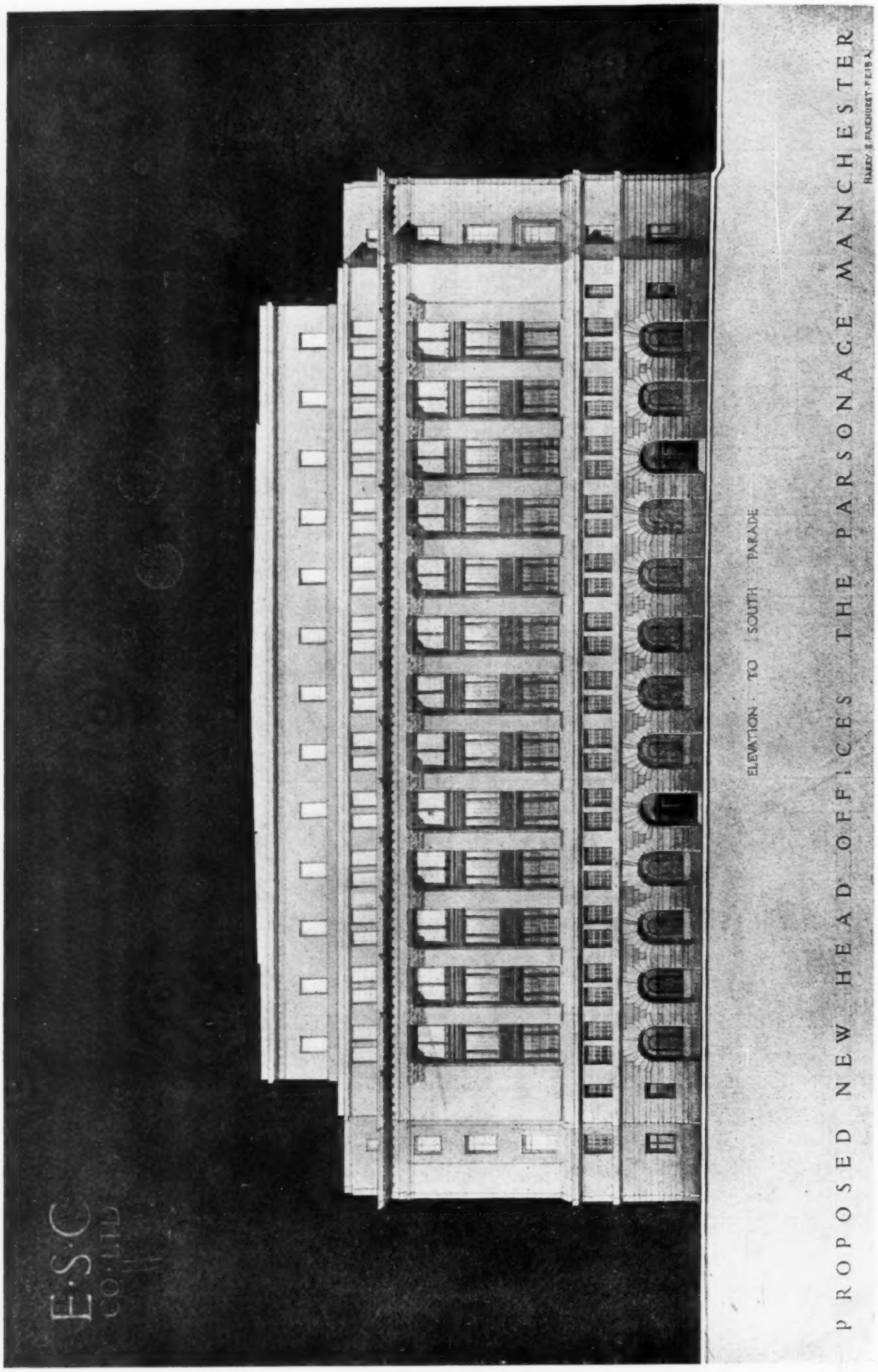
Mr. Harry S. Fairhurst, F.R.I.B.A., Architect.





Proposed New Head Offices for the English Sewing Cotton Co., Ltd., The Parsonage, Manchester.

MR. HARRY S. FAIRHURST, F.R.I.B.A., Architect.



Proposed New Head Offices for the English Sewing Cotton Co., Ltd., The Parsonage, Manchester.
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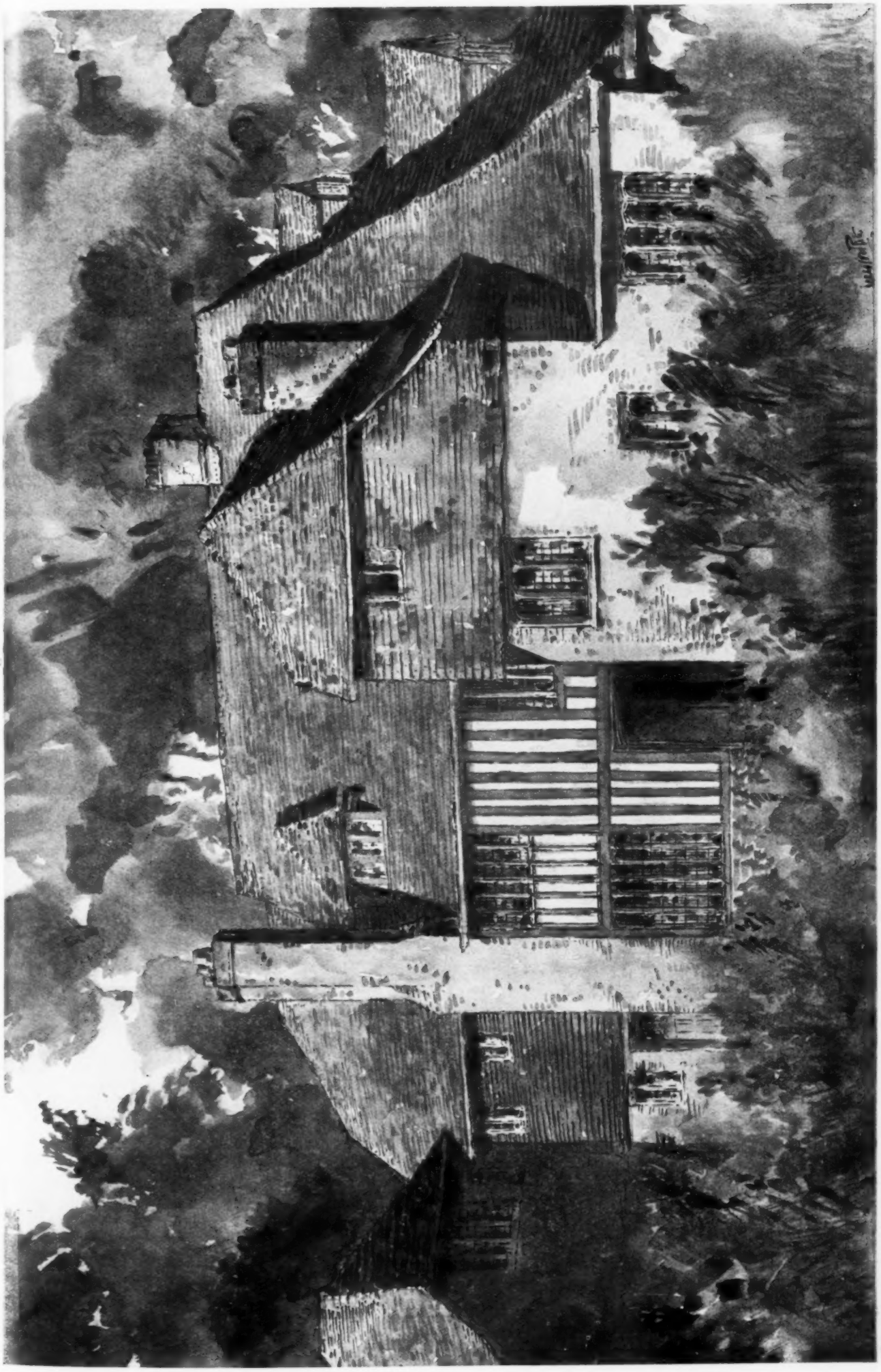
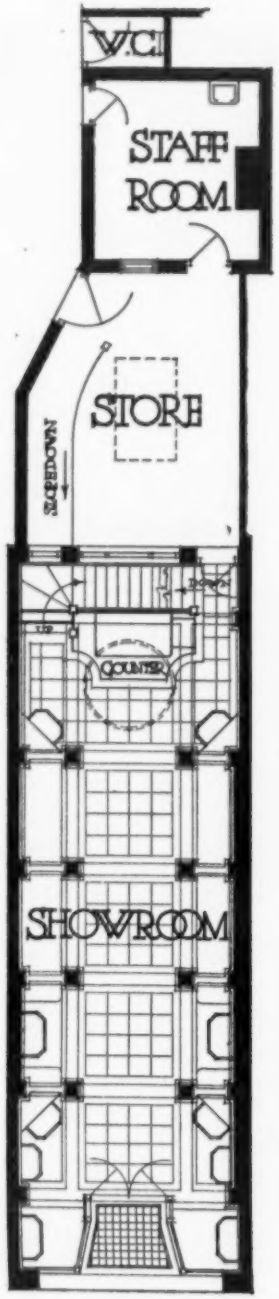


"The Old Hall," Sundridge, Kent.

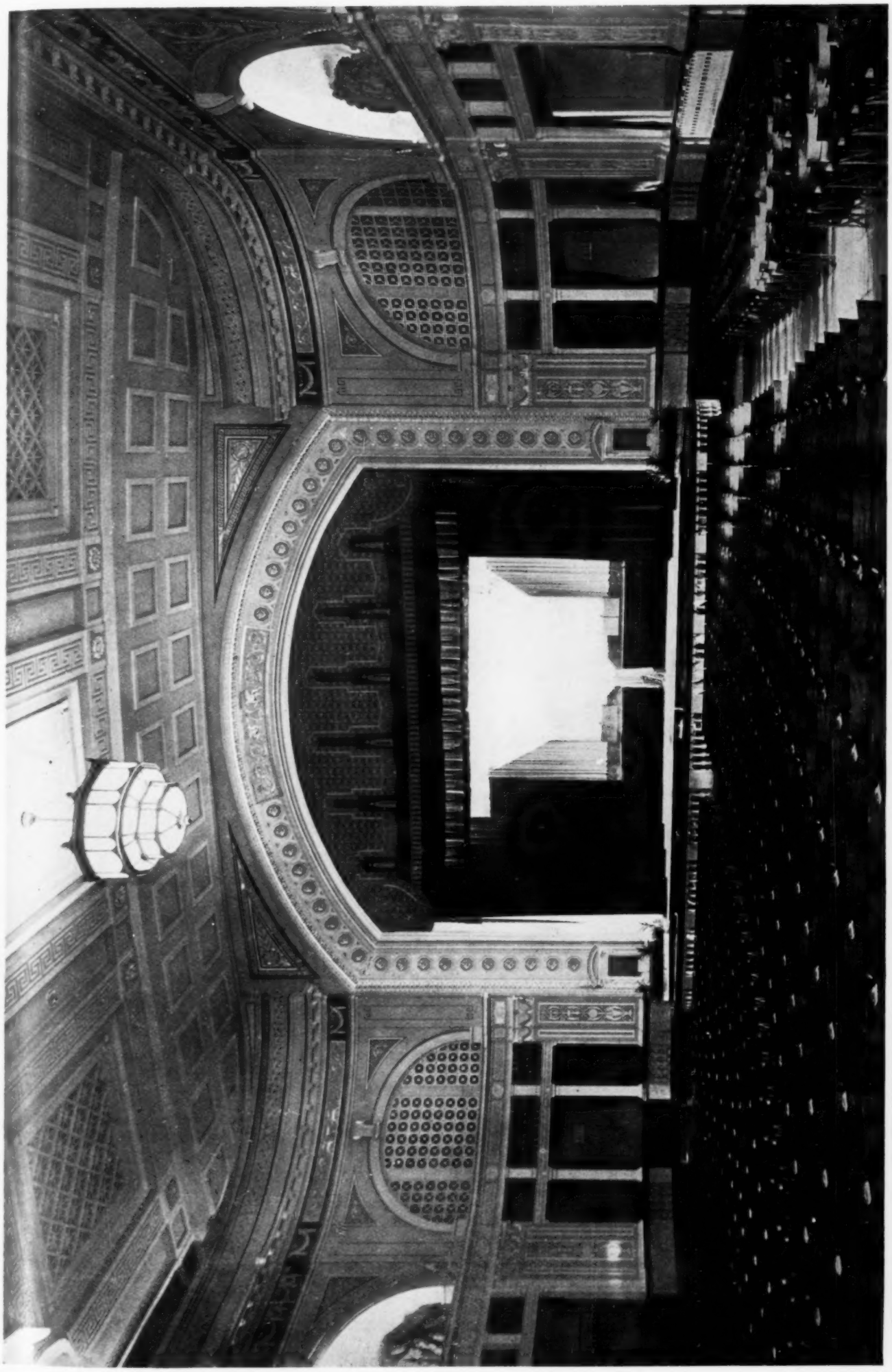
PROFESSOR BEREFORD PITE, F.R.I.B.A., Architect.

Mr. HARRY S. FAIRHURST, F.R.I.B.A., Architect.



Showroom for the Town of Dudley Gaslight Company.

MR. A. T. BUTLER, F.R.I.B.A., Architect.



Broadway Super-Cinema, Stratford : View looking towards Stage.

Mr. George Coles, F.R.I.B.A., Architect.

Mr. A. T. Butler, F.R.I.B.A., Architect.

VESTIBULE.

GENERAL VIEW OF EXTERIOR.

Broadway Super-Cinema, Stratford.

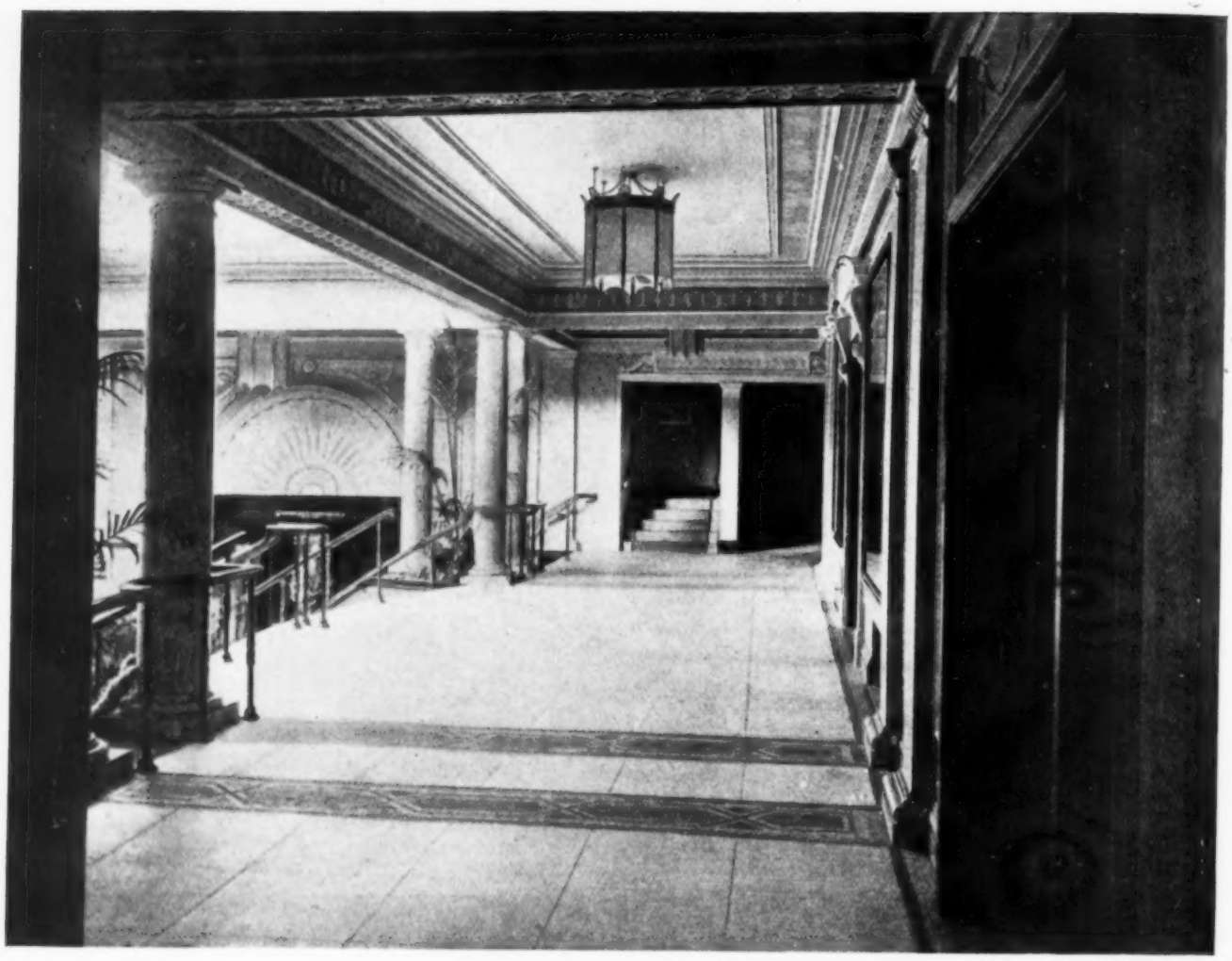
MR. GEORGE COLES, F.R.I.B.A., Architect.

GENERAL VIEW OF INTERIOR, LOOKING TOWARDS BALCONY.

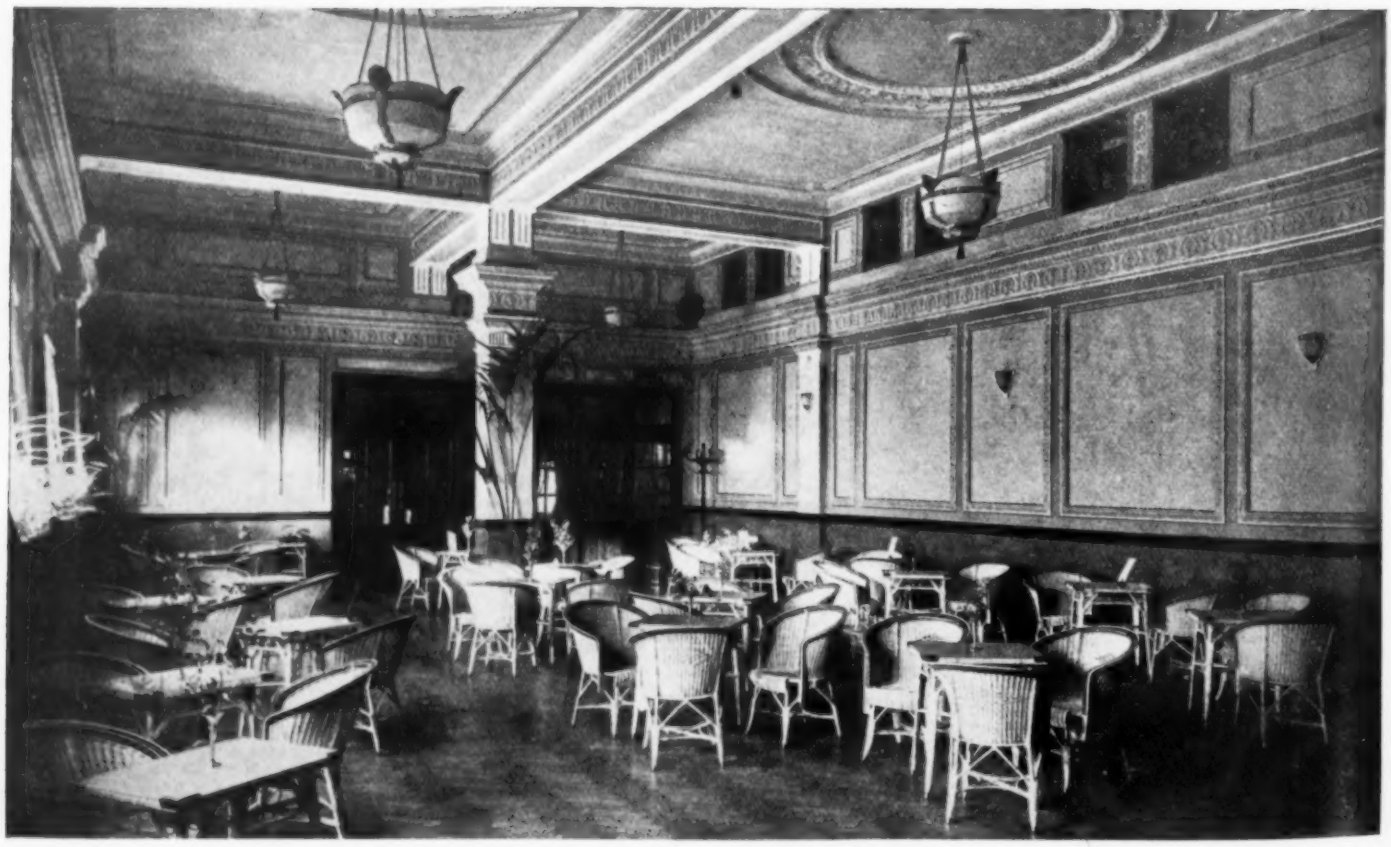
VIEW ACROSS INTERIOR.

Broadway Super-Cinema, Stratford.

MR. GEORGE COLES, F.R.I.B.A., Architect.



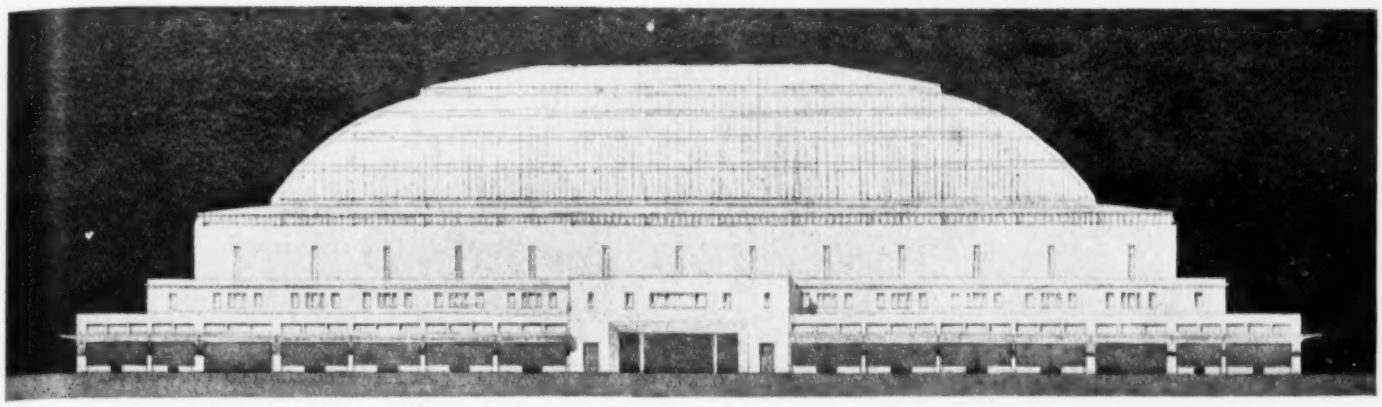
TOP OF VESTIBULE STAIRCASE.

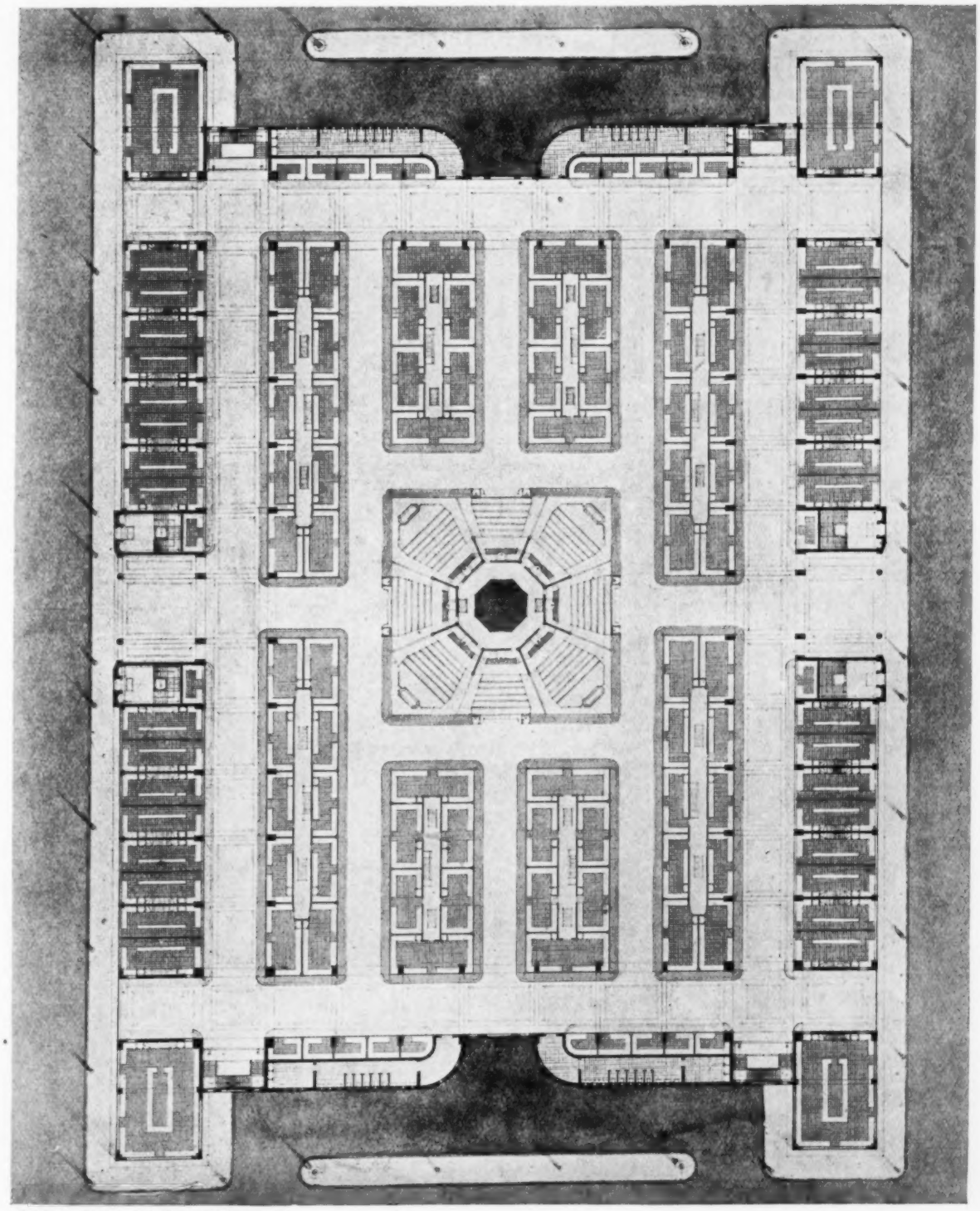


LOUNGE.

Broadway Super-Cinema, Stratford.

MR. GEORGE COLES, F.R.I.B.A., Architect.

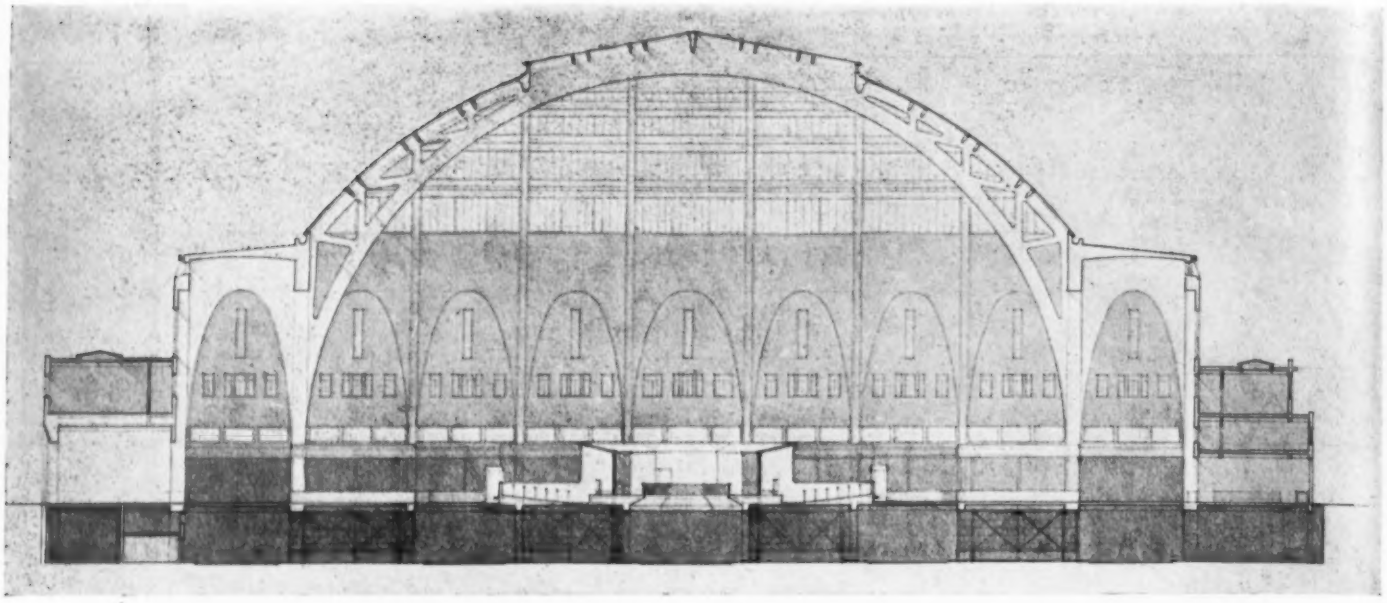




R.I.B.A. Prizes and Studentships.

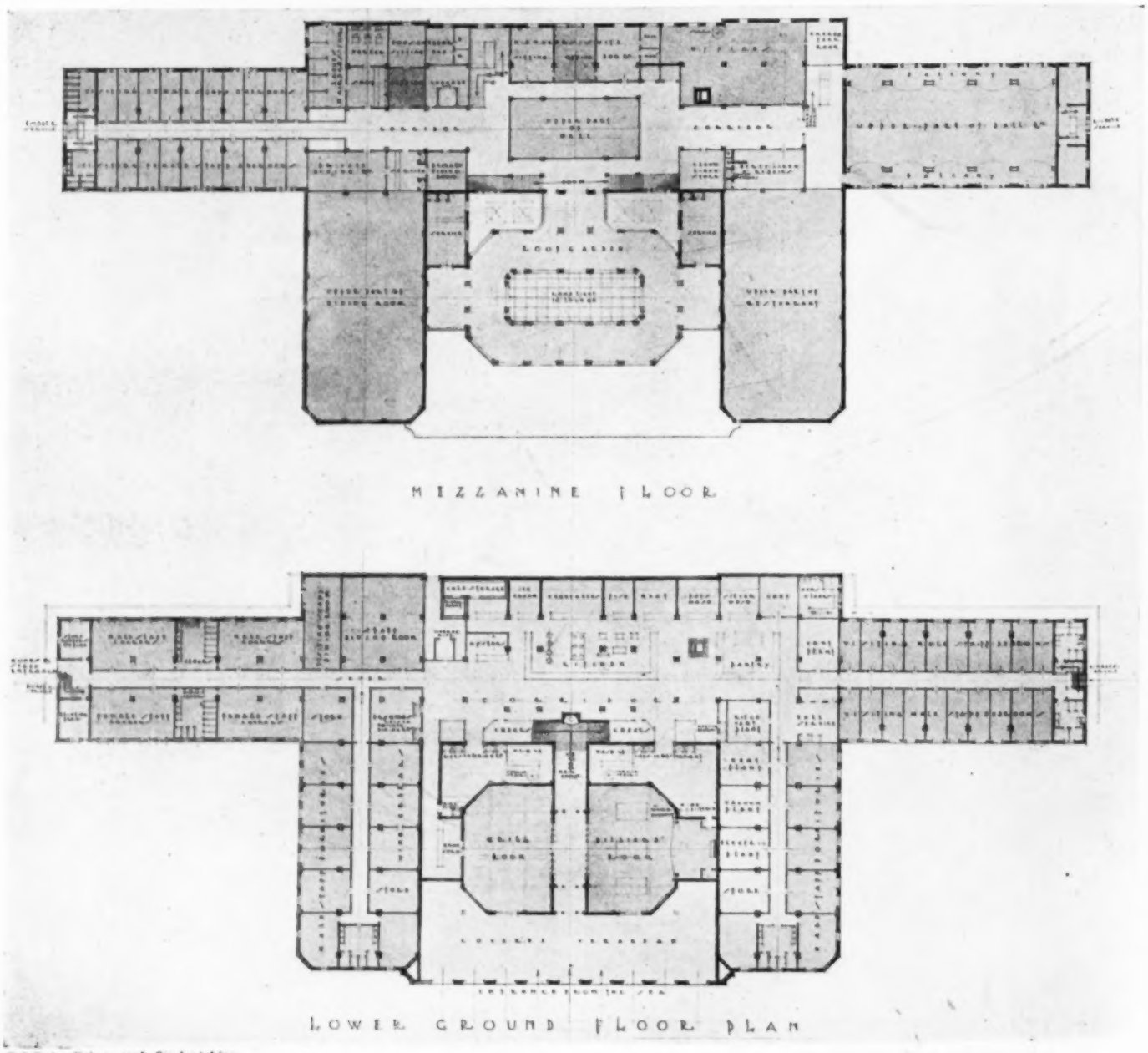
The Soane Medallion. "A Covered Market": Winning Design.

By MR. LEONARD W. T. WHITE, A.R.I.B.A.



The Soane Medallion. "A Covered Market": Winning Design.

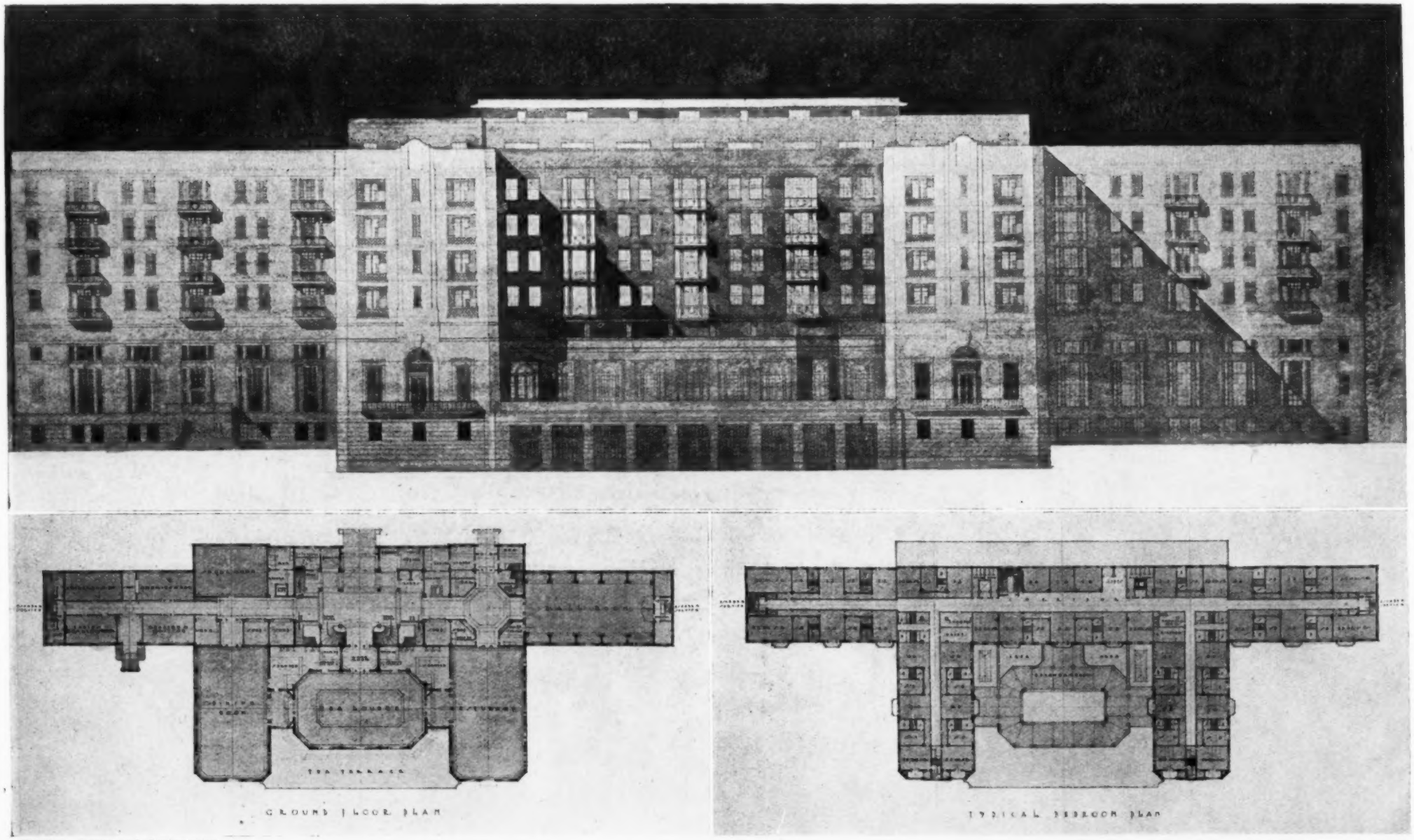
By Mr. Leonard W. T. White, A.R.I.B.A.



R.I.B.A. Prizes and Studentships.

R.I.B.A. (Alfred Bossom) Travelling Studentship. "A Seaside Hotel": Winning Design.

By Mr. Patrick Cutbush, A.R.I.B.A.



R.I.B.A. Prizes and Studentships.

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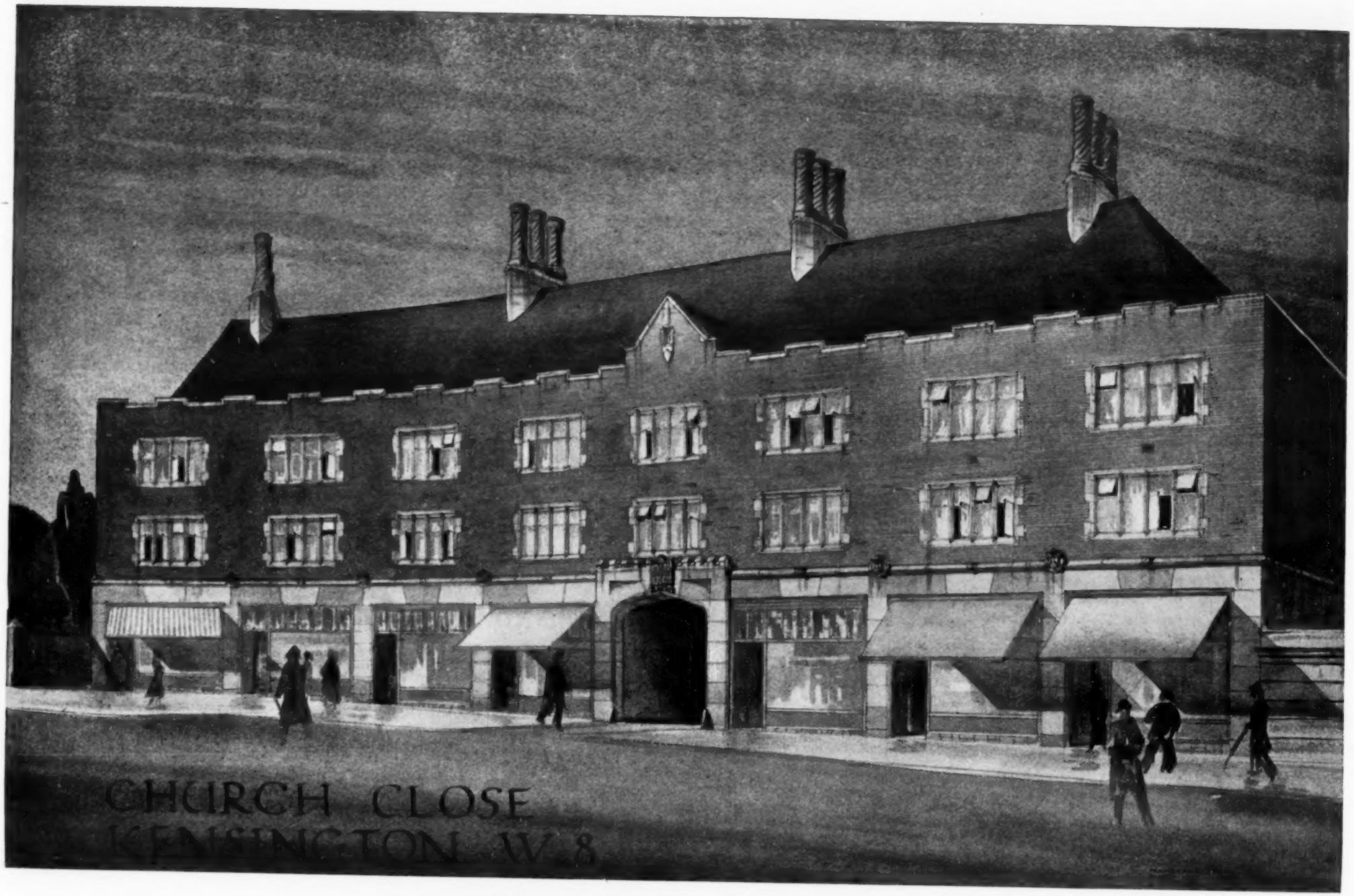
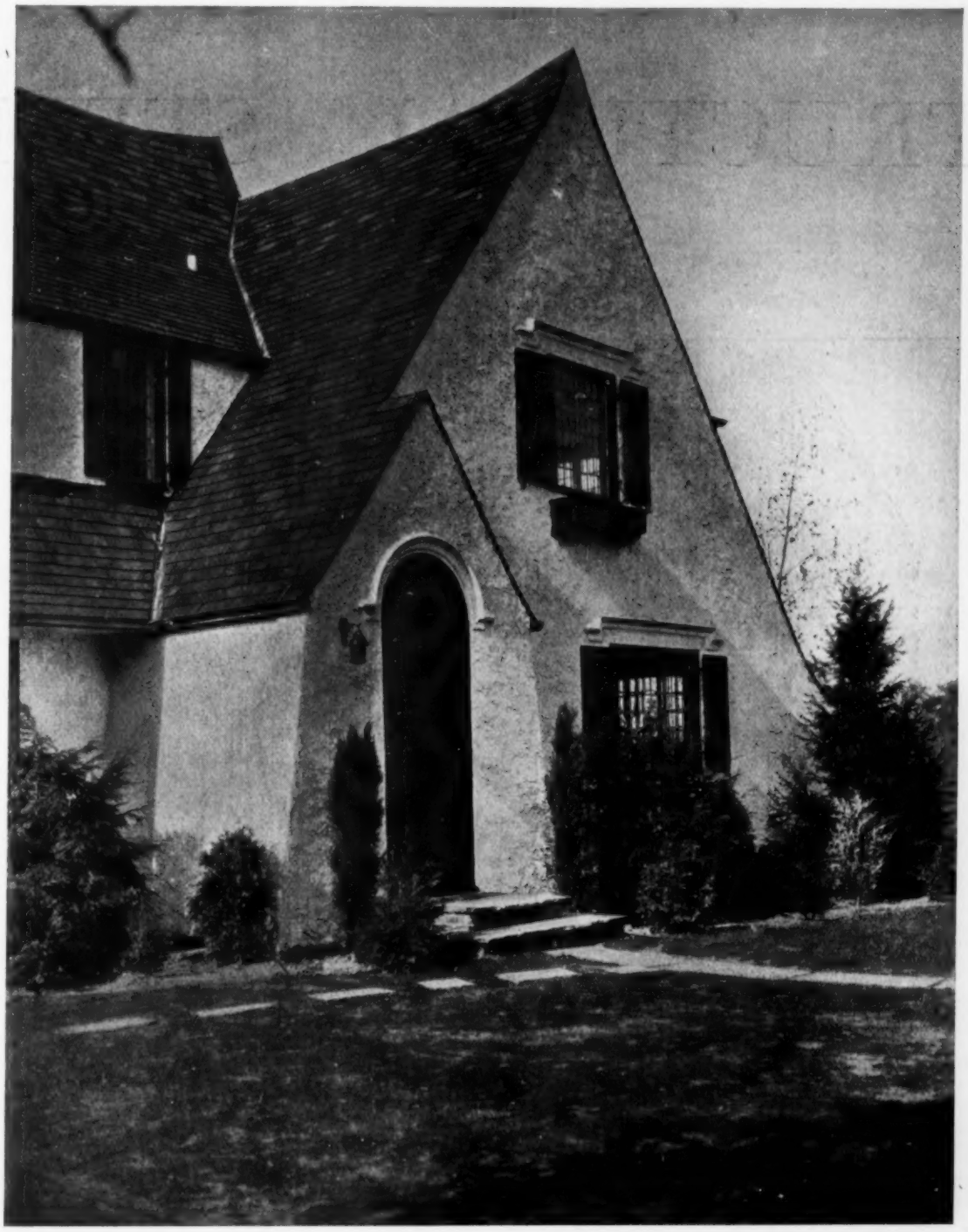


Shops and Flats, Church Street, Kensington.

MESSRS. YATES, COOK & DARBYSHIRE, Architects.

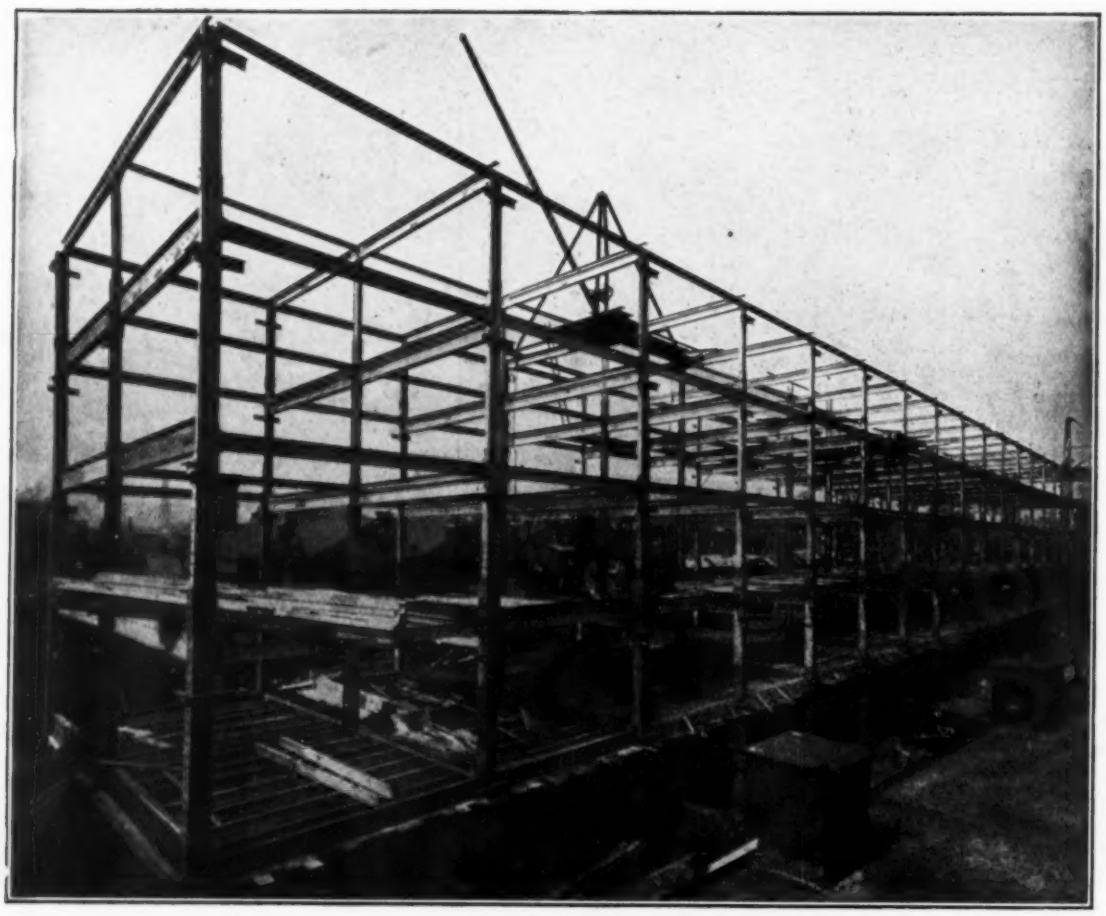


The house illustrated on this page was finished in an ivory shade—just delicately differing from a pure white—with the added attractiveness given by an artistic textural finish. The ingredients of the surface rendering were three in number: "Atlas White" Portland cement, a coarse-grained sand of ivory colour and clean water. The plasterer used an ordinary wood float. That "Atlas White" rendering has the full tensile strength and lasting properties of true Portland cement concrete—its paramount asset. Write for my illustrated book of textural finishes—"Stucco." Every architect should have a copy. I make no charge for it.

Regent House,
Regent Street,
London, W.1.

Frederic Toleman

STRUCTURAL STEEL.



Garage Building—Lambeth, S.E.

REDPATH, BROWN & CO., LTD.,

CONSTRUCTIONAL ENGINEERS,

3 Laurence Pountney Hill, E.C.4.

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London	Manchester	Edinburgh	Glasgow	Birmingham
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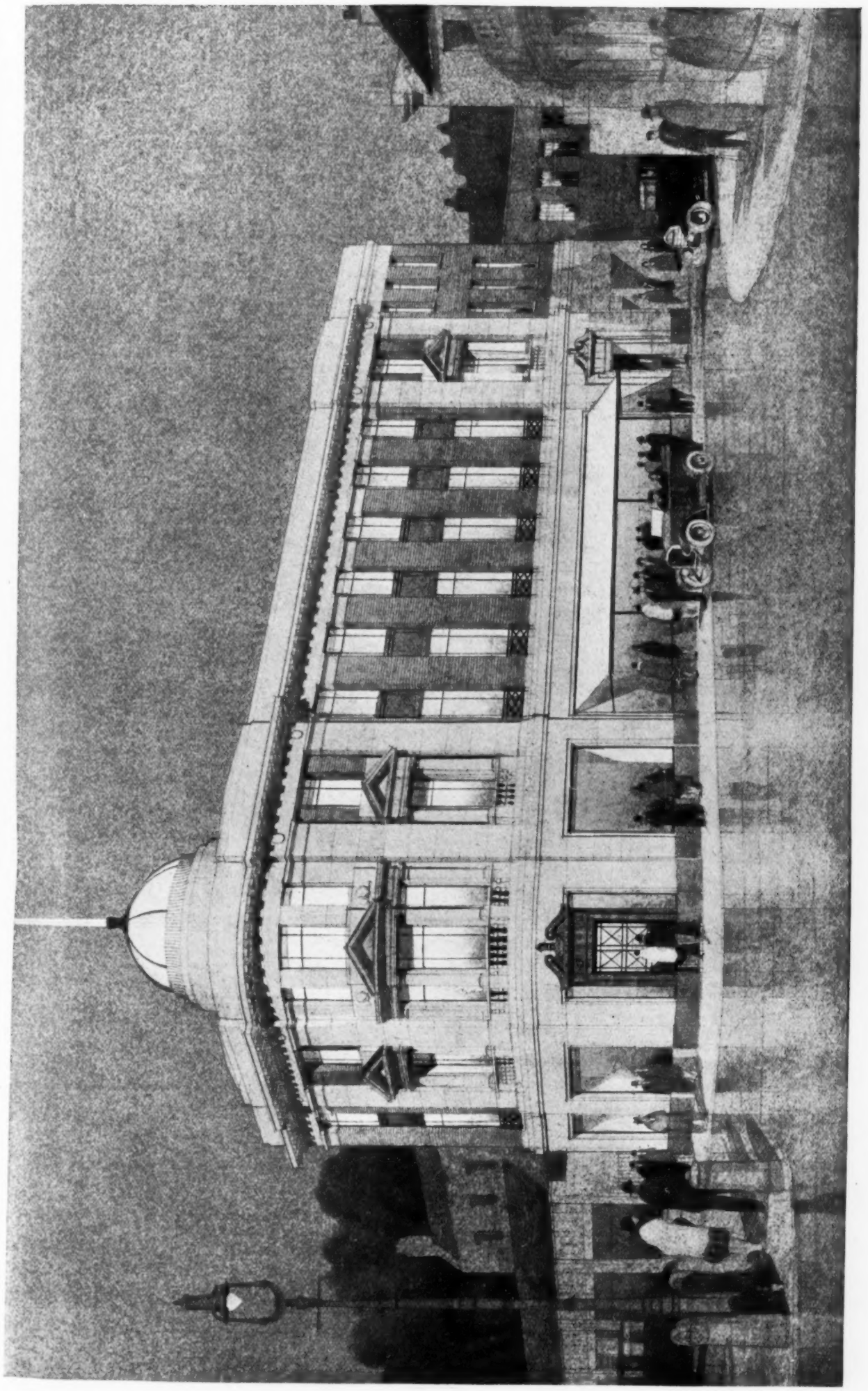
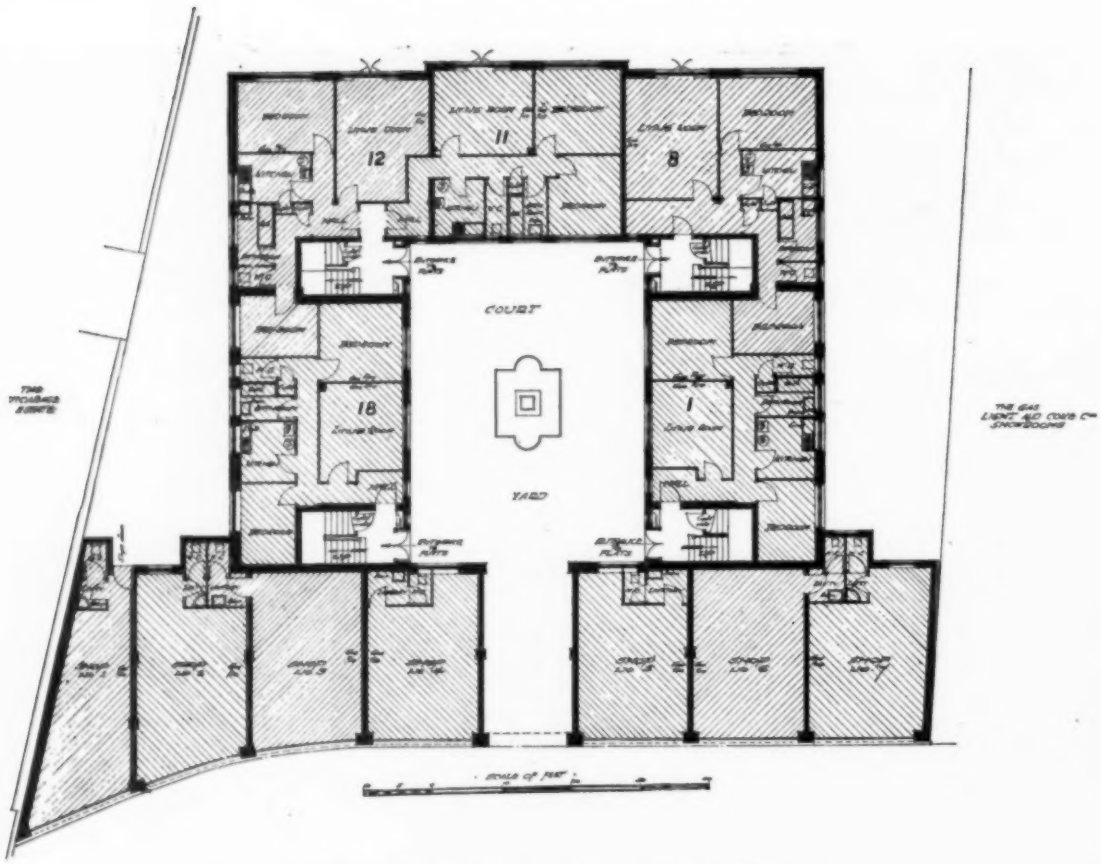
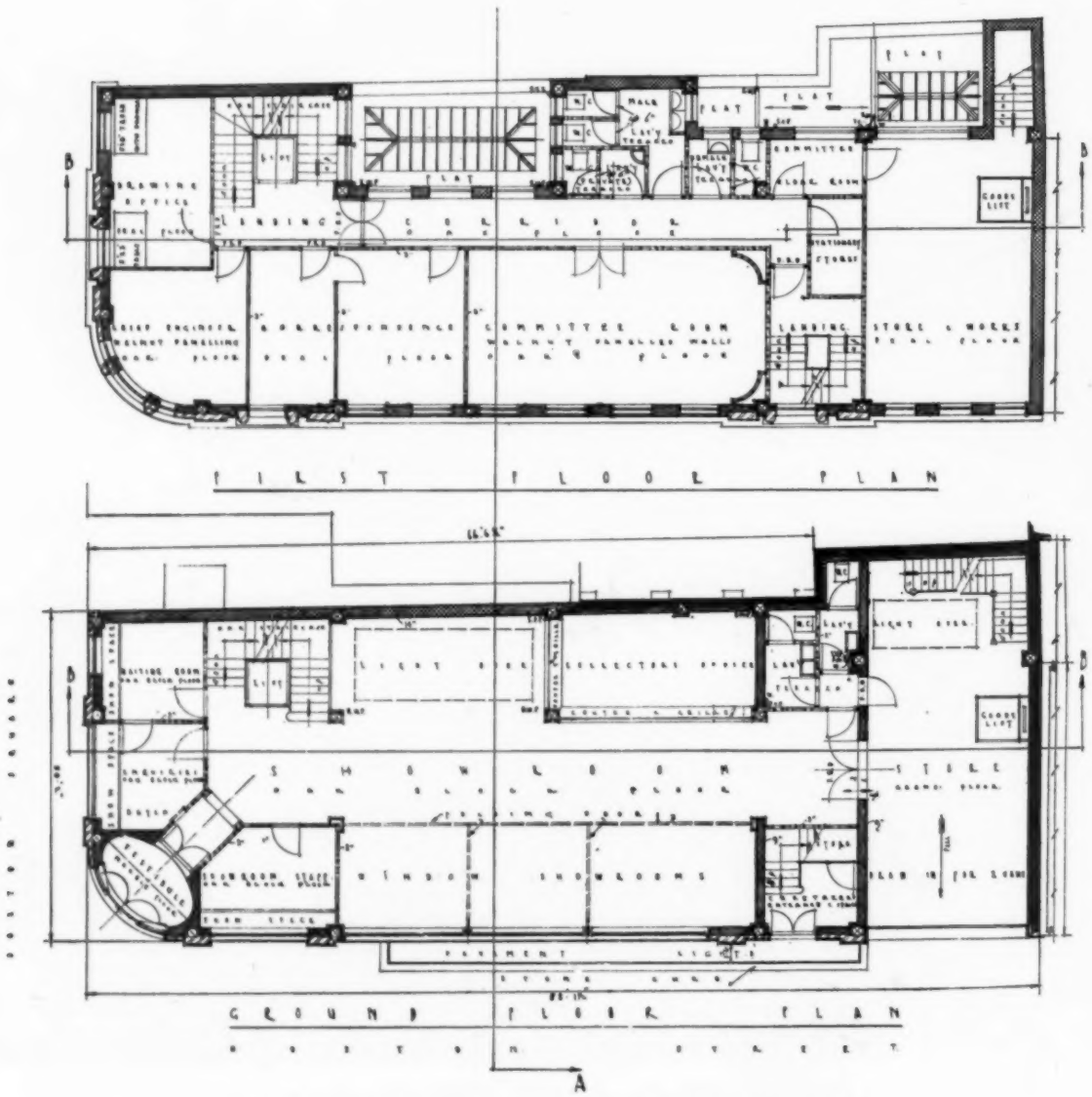


New Electricity Showrooms, Hoxton Street, Shoreditch.

MESSRS. YATES, COOK & DARBYSHIRE, Architects.



Shops and Flats, Church Street, Kensington.



New Electricity Showrooms, Hoxton Street, Shoreditch.

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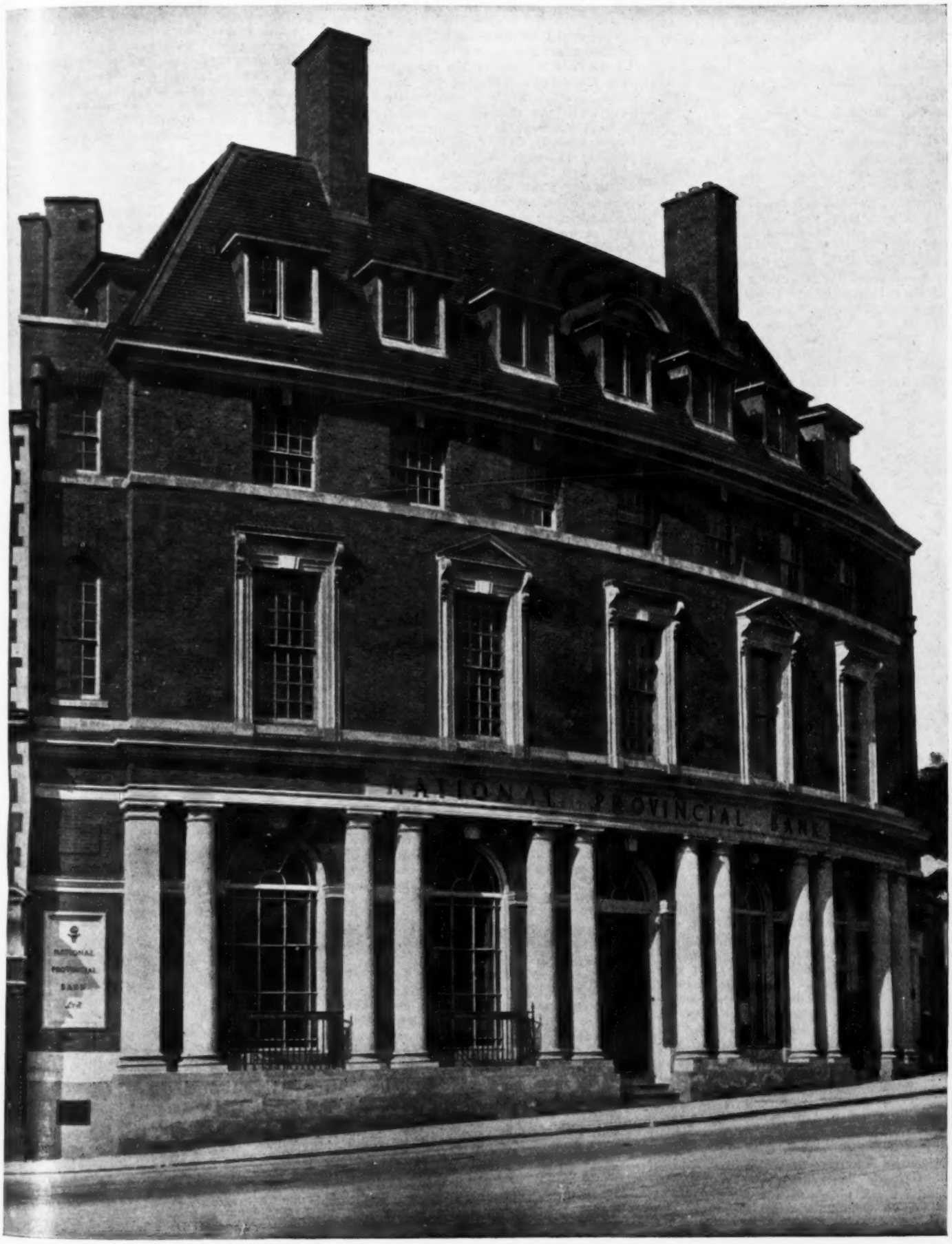


The National Provincial Bank, Hendon.

MR. F. C. R. PALMER, F.R.I.B.A., F.S.I., and MR. W. F. C. HOLDEN, F.R.I.B.A., Architect and Assistant Architect to the Bank, respectively.

ARCHITECTURE, NATURE AND MAGIC

By W. R. LETHABY.

I. THE WORD FABRIC.

It is now about forty years since I began to study some less considered causes which underlay the development of the building art. The results, so far as they went, were published in 1891 (dated 1892), with the title "Architecture, Myth, and Mysticism." There was little or nothing in the book about mysticism, but the jingle of words, after the manner of Andrew Lang's "Myth Ritual and Religion," a book that had interested me, sounded pleasing at the time. My little book was very insufficient and in many ways feeble; second-rate and second-hand authorities were mixed up with true sources, and the whole was uncritical and inexpert. Afterwards I made further collections, but the subject proved to be so vast and vague at the boundaries that I gave it up and lost my additional material. Further, the books on the early history of man, myths, and cults were so many and so large that it seemed hopeless for me to attempt to deal with them. Here I would specially mention Sir James Frazer's *The Golden Bough;* Dr. Solomon Reinach's *Cults, Myths and Religions;* Dr. Farnell's *Cults of the Greek States;* A. della Seta's *Religion and Art;* and Dr. A. B. Cook's immense work entitled *Zeus.* For the purpose of this revised survey of the boundless field I have made the greatest use of the last-named work—which is the most recent (1925). My little volume went out of print and I was pleased that it should be unobtainable. Now, however, if time allowed, I should like to rewrite the whole under the more reasonable title, "Architecture, Nature, and Magic," but this may hardly be done, and here I can only slightly modify the plan, give a general account of the argument, and put on record some additional facts and observations.

The main thesis that the development of building practice and ideas of the world structure acted and reacted on one another I still believe to be sound, and much of the material brought together to give substance to the proposition is not without its value.

It was also shown that, beyond this specific and direct interaction, Nature was further the source of much of what is called architectural decoration in a way which is not recognised in the histories, or is attributed to "æsthetic design," whatever that may be. Again, thought of magical properties generally had a very wide and deep influence on the development of ancient building customs.

The usual method has been to write histories of architecture from the points of view of structure and of "style"—style being usually understood as "taste" in building which we like or do not like. What will here concern us are some realities behind the phenomena of structure and the appearances of styles. Such an inquiry, remote as it may seem, will be of some immediate practical consequence for us, for in the result we may recognise that there is, and must be, an impassable gulf between all ancient arts and our own. At the inner heart of ancient building were wonder, worship, magic, and symbolism; the motive of ours must be human service, intelligible structure, and verifiable science. As Mr. Statham well said, "all architecture—that is, all that is worth the name—is one vast symbolism: symbolism controlled by and expressive of structure might be the definition of architecture in the higher sense." In saying that the old ways are closed to us, please do not think I would have it so if it might be otherwise; my own mind rests with the poetries of ancient art and I am altogether inadequate for the methods of science. However, I do see that science has a new magic wonder of its own, and that the manufacture of sham antiquity in our buildings is vain and silly. Look at our sham classic business premises and cinemas and our sham Gothic churches! I am sure for myself that such trivial make-believing too long persisted in must mean national decay.

The works of man as builder have been of immense importance to him not only "materially" and for his convenience, but as a means of developing his mind and releasing his spirit. Man is primarily a maker, a builder. As through the prehistoric ages he built his way, so he strengthened and enlarged himself and formed a frame for explaining the universe. De Morgan, in the great new French history of civilisation, writes: "That which marked the end of animal development and the beginning of human history was the discovery of the hand. Man at his origin is the maker. Decisive at the beginning, the rôle of technique is immense all along the human line. Man in the mass has been a workman."

One of my purposes in this essay is to open up a view of building and the crafts wider than "æsthetic" appreciation, an understanding deeper than chronological cataloguing. As I necessarily deal with testimony it seems better to quote my authorities rather than to paraphrase them or adopt their learning without due acknowledgment.

. . . . . .

It seems to be agreed by competent scholars that a common early explanation of the earth and the heavens was that there was a central stem and that the revolving sky was sustained by its branches. I brought together testimony on this point and will now only quote again an extract from Dr. Taylor's *Early History of Mankind.* "There are other mythological ways besides the heaven tree by which in different parts of the world it is possible to go up and down between the ground and the sky or the regions below. . . . The earth is a plane surrounded by the sea, and the sky forms a roof on which sun, moon, and stars travel. The Polynesians thought, like many other people, that the sky descended at the horizon, and still call foreigners "heaven bursters" as having broken in from outside. The sky is called in a South American language "the earth on high," and we can understand the thought of Paraguayans that their souls would go up to heaven by the tree which joins earth and sky. There are windows through the sky-roof or firmament where the rain comes through. As above the flat earth, so below there are regions inhabited by men or man-like creatures who sometimes come up and sometimes are visited by inhabitants of the earth, we live, as it were, upon the ground floor of a great house with stories rising one over another above us and cellars down below."

The earliest constructive works of man—holes for shelter, pits for burial, and clay vessels—would quite obviously have been more or less round in general like a child's sand pit or a bird's nest. At some time an observant man must have noticed that the sun in the heavens was a perfectly true example of the same shape. A "general idea" of the circle was thus reached, and when, further, it was found that the circular form could be produced at will by revolving a stick attached at one end, geometry was born. This recognition of a type in the heavens and of man-made imitations on earth would have seemed a mystery—as indeed it was—and every such imitation must have had something of a magical character.

From about 5000 B.C. the Egyptians raised over their burial pits mounds which sometimes were surrounded by rough stones to retain the sand from spreading: these, the earliest known structures, were round or oval, and any pottery found in the pits was circular. Dwelling-places made of reeds or clay were doubtless of the same form. The most ancient dwellings known in Europe were also circular huts, and of this type we have examples surviving at Grimspound and other places in England. In his excellent *Evolution of the English House,* Mr. S. O. Addy writes: "In Great Britain as elsewhere the evidence leads us to the conclusion that the earliest form of dwelling fit to bear the name of house was round. In Italy the type of round house lasted down to historical times in the Temple of Vesta." A MS. note on the copy I have been reading adds: "To the present in the huts of the peasantry of the Campagna and elsewhere."

A large round hut with walls of mud reed would have required a central post towards which the roof would rise. Such a post might be a living tree or be cut from a tree. Sometimes dwellings were erected around trees. A column of the kind became a symbol of the world tree. With every adaptation and discovery must have been linked a sense of likeness and mystery. It is evident that the naming of new functional parts in building would at first probably follow their natural prototypes. The idea of a column, for instance, may at first have been almost inseparable from that of a tree. Other posts were made of bundles of reed. Thus it was that columns came to have capitals of "foliage" and "reeded" stems. The characteristic of a floor is its levelness, and possibly it is because water is the most level thing in nature that we seem to find evidence of a tendency to represent water on pavements. Certainly there has been throughout the ages an association in thought of roofs and the sky, as in our phrases the "azure vault" and "starry dome," and in our word "ceiling."

Behind the great ritual architecture of Egypt, which we know from the massive monuments in almost indestructible materials that still exist, were other forms of common building which time has almost completely obliterated. Such were the ordinary constructions of mud, reed, and wood. "It would seem," says Capart, in his suggestive *Egyptian Art,* 1923, that mud building is the most ancient type. Little models of dwellings are often found, especially in the tombs of the Middle Kingdom, and these reproduce the forms of mud-built houses such as are made to this day by the natives of Egypt. . . . From the earliest [dynastic] times the Egyptians knew the use of brick vaulting . . . the semi-circular became quite common from the third dynasty. . . . It would seem that arch formation was used by the ancients as extensively as it is by Arab builders of modern Egypt. . . . The Egyptians often copied this form of vaulting in their stone buildings; which is not to say that they made stone vaulting. In the time of the New Empire square spaces covered by brick cupolas are found."

Small round mud erections covered above in a domical form, and known to us by hieroglyphic signs, continued in use as granaries. These had a knob-like projection (or lid?) on the top, which may be the parent of all "lanterns" on domes. The circular mud hut persisted down the ages. The English traveller Blunt who visited Egypt in 1638 remarked on the beehive houses of clay. While the one clearly identifiable geometrical form known to man (sun-shape) was commonly followed in building, the world itself must have been thought to have the same shape and the sky would have been imagined as more or less domed.

Rectangular graves superseded round pits, following a custom of burial in an extended rather than in a contracted position. Possibly single dwelling huts followed the development of the grave; or they may have been made square so as to take reed mats; perhaps, however, dividing up of large round huts led to square building. In any case square planning became necessary when several huts or rooms were grouped together in a larger complex structure.

The discovery of the square as a general geometrical idea was a great advance of mind. This form was probably, I think, first recognised in weaving and in folding and dividing woven things. A square in Egyptian hieroglyphics represents, I believe, a

mat, and this may well be significant. We ourselves, too, with our ready apprehension of front and back, right and left, fall in with rectangular space thinking. In settled agricultural ages, dividing up land was done in rectangles, and from this procedure we have the name geometry.

The square, when discovered, became a rival, and more than a rival, of a circle in representing the foundational conception of building, and general adoption of the square type of building was soon reflected back on the world structure. Dr. Wallis Budge described this structure thus: "From the texts inscribed upon the walls of the corridors and chambers of the pyramids of Unas, Teti, Pepi, and other early kings, it is clear that the primitive Egyptians believed that the floor of heaven, which also formed the sky of this world, was made of an immense plate of iron, rectangular in shape, the four corners of which rested upon four pillars which served to mark the four cardinal points. On this plate of iron lived the gods and the blessed dead. At certain sacred spots the edge of the plate was so near the tops of the mountains that the deceased might easily clamber on to it."

If the sky was regarded as flat this conception would be based on the slab and beam ceilings of tombs, the most monumental of ancient structures. Unless, however, there is clear written testimony beyond the evidence of the monuments, I do not feel sure that the thought of a flat sky was exclusively held. The view that the material was iron was probably derived from the fall of meteorites. Of iron it is said, "in historic times they still called it the metal of heaven." The sky is very often represented in Egyptian carving and painting as a flat band, but this tells little more than the level sky of a modern landscape painting (Fig. 1). Even here the turned down points at the ends

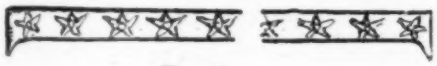


FIG. 1.

may be intended to indicate roundness In later times a vaulted form of sky is frequently represented, and a rounded form so often occurs in representations of sacred shrines from the early dynasties that I am disposed to think this was understood to be the true fashion of the heavens. The highly decorated tomb chapel recently discovered by Mr. C. Firth at Sakkara has the wall carved into the semblance of such shrines. This work is earlier than the Great Pyramid and probably dates from the third dynasty.

Vaulting in brick was practised even more generally in Mesopotamia than in Egypt. Some early vaulted chambers were found in last season's work at Ur of the Chaldees, and evidence was also gained that arches were in quite common use. The ruin of a temple which was found is restored as a square covered by a dome. Arches, vaults, and domes became common factors in ordinary building, and from an early time the sky would have been thought of as vaulted or domed. In the more developed scheme of Babylonian astronomy there were seven heavens, each one being assigned to a planet. Plato tells a story of the gods driving their chariots on the vault of heaven. To the old Chinese, "Heaven is round, Earth square."

Making the world square on plan had the advantage that as the sun always rose, or entered, on one side of the world structure and set on the other side, the square form readily allowed of the conception of front and back to explain this happening. In the Book of Genesis the eastern quarter is "in front."

When, further, it was told that the climate varied from north to south, it became an easy explanation that the world was longer than broad. A fourth-century writer says that by "the Gates of the Sun" Homer meant from the sign of Cancer to that of Capricorn, "for these are the limits to which it progresses from north to south" (Cook, II., p. 41). On the west were exits to the underworld. The limited range of the sun northward or southward to the points where it was turned back on its course might well suggest a world twice as long as broad.

Several diagrammatic representations of the world structure exist on Egyptian monu-

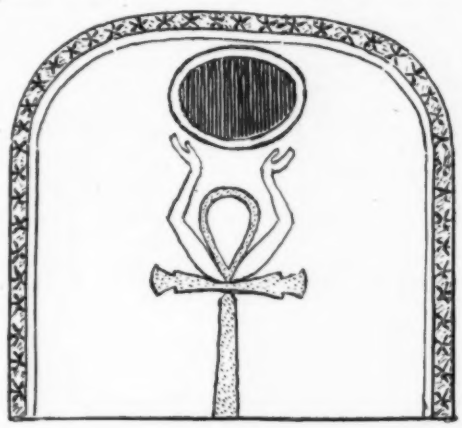


FIG. 2.

ments and papyri exhibited at the British Museum. A papyrus of the Book of the Dead in the long ground-floor gallery (*c.* 1050 B.C.) represents the heavens rising from the earth and forming an arch above (Fig. 2). In the middle below rises a great *Ankh* symbol of Life from which issues two arms guiding the Sun. The standard part of the *Ankh* is in the form of an obelisk. On the same papyrus a god is painted enthroned above a blue slab (heaven), which is supported by this same symbol and *Tet* pillars (symbols of stability) alternately.

Another representation of the type (Fig. 2) occurs on the famous papyrus of Ani, dated *c.* 1450 B.C., of which a facsimile is exhibited at the Museum.

Again, on a papyrus dated c. 970 a *Tet* pillar forms the lowest part of the central composition, with an *Ankh* above, from which issue arms reaching up to the Sun. The sky is here a flat band, and on either side are wavy lines which look like clouds.

The papyrus in the Museum of the Lady Mut-Hetep, of the nineteenth or twentieth dynasty, represents the heavens as in Fig. 3. (I omit, as before, several minor details.) A similar drawing on the papyrus of Ahnai (c. 1000) shows the earth as having tall mountainous sides and a lower mountain in the middle. From this central mountain rises a pillar, above which is the solar hawk, with the sun's disc on its head.

A late but beautifully carved black slab in

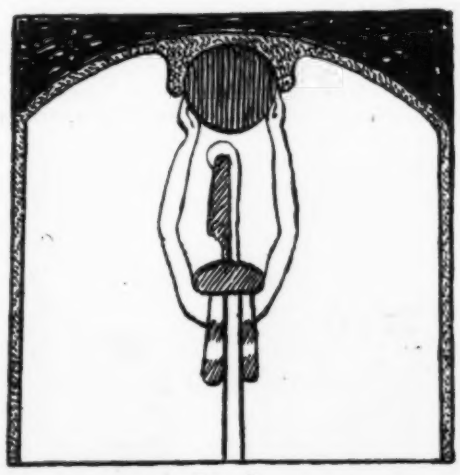


FIG. 3.

the ground-floor gallery, dated c. 300 B.C., has along the top a segmental bar for the sky and three supports below (Fig. 4).

The upper part of a lime stone obelisk in the same gallery, No. 1512, has carved on each of its four sides the level bar symbol of the sky supported by three upright pillars, which must represent the walls of the world and a central sky pillar. Over the sky, on every side of the obelisk, is a symbol of one of the Four Winds, with another level heaven bar at the top. The proper place of the winds was evidently outside the world ceiling, but under an outer roof, and they only occasionally broke through. I suppose the rain used the same apertures. "And the windows of heaven were opened and the rain was upon the earth forty days . . . the windows of heaven were stopped and the rain from heaven was restrained." On the apex of this obelisk is the tail of a bird, the rest being broken away. This bird was doubtless the solar hawk. The obelisk "was probably set up in some open space in front of a temple in honour of the gods of the Winds." Standing four square to all the winds and supporting the solar hawk, it must have symbolised the power which sustained the heavens.

. . . . . .

As for the purposes of this inquiry I have had to acquaint myself so far as possible with questions of origins, it may not be too far out of the way to note what I have gathered in regard to the chronology of the early arts of civilisation. Scholars, with the great exception of Sir W. Flinders Petrie, are now in general agreement that the first Egyptian dynasty began about 3300 or at earliest 3500 B.C. From recent alterations on the labels at the British Museum it appears that the authorities have lately come into line, in this respect, with Continental and American conclusions. The date of the earliest pyramids of Egypt may be thought of as about 3000 B.C.

The chronology of works of art in Mesopotamia can be carried back to about the same

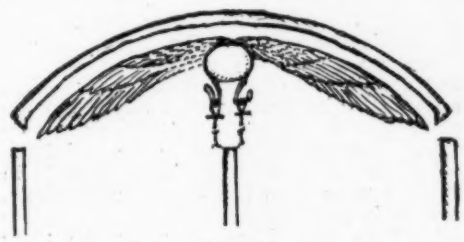


FIG. 4.

epoch, as recent excavations at Ur amply show. Many close resemblances between the arts and customs of the peoples of Mesopotamia and Egypt suggest that there was some relation or contact between the two at an early time, and evidence seems to be accumulating that Western Asia led the way in developing the arts.

Note.—Fig. 2 resembles two Cretan paintings figured by Dr. A. B. Cook (*Zeus*, II., Pl. 27 and Fig. 395) so closely that it may not be doubted that there was some connection between the ideas and arts of the two centres, and that sky supports are represented in the Cretan works.

Brangwyn Etchings for Holland.

We understand that Mr. Frank Brangwyn has, as a token of his regard, presented to the Dutch nation a collection of more than 250 of his etchings and lithographs, these being almost the whole of his graphic work. The collection will be placed in the print and engraving section of the National Museum at Amsterdam.

New County Offices for Somerset.

At a meeting of the Somerset County Council a resolution, moved by Sir Robert Saunders, M.P., was approved, that new county offices should be erected at Taunton adjoining the Shire Hall and in close proximity to other county property. The estimated cost of the new building is about £70,000.

ENGLISH VILLAGES—I

By V. M. CHRISTY.

AT the present time considerable thought is being applied to the question of preserving those characteristics to which the rural villages of England owe their unique charm. It is being recognised that the distinctive quality of what is known as "rural England" lies not only in the natural beauties of open fields, woods, downs and streams, but also in man-made beauty, and the evidence of craftsmanship and community expression to be found in the plan and structures of the English village. To prevent, so far as may be, the intrusion of ill-considered and disfiguring elements of modern development and commerce into the unspoiled rural village, as well as to prevent the deliberate destruction of objects of beauty and interest, is one of the aims of the Council for the Preservation of Rural England and its specialist constituent bodies. Already enlightened public opinion is in general sympathy with this aim, and it is noteworthy that architects, builders, local authorities and other technical groups, as well as societies representing more definitely archæological or æsthetic interests, are strongly represented on the Council. But real progress in the matter of preserving the best in the old and controlling the new can only be effected if a habit of observation, which is one of the stepping-stones to a cultivation of good taste, is more widely developed, and the national conscience aroused.

It is seldom realised, moreover, that the study of our older villages is as important from a practical standpoint as from that of the more intangible values, which contribute so largely to what a recent speaker termed "the essentials of happiness." The village is the product of many forces and influences. It bears evidence of the life and growth and expansion of a community, and of the interaction of natural circumstances with human resource and invention. New needs as they arise and fresh solutions of age-old problems react in varying ways upon the villages of England, and it is possible to trace influences more clearly in the village than in the more complex organisation of the town. This is partly because of the essential leisureliness of the village, which takes slowly to new ideas and methods, and preserves its records in brick and stone, wood and plaster, in the grouping of its buildings and the shape of its fields, rather than writing the history of the present ruthlessly across the palimpsists of its past. After a couple of centuries of more or less deliberate town-making there is dawning a consciousness of the value of the village. One of the most urgent problems of to-day is that of attempting to reconcile modern industry, transport, habits and methods with the preservation of rural amenities; to reconcile the products of an age of speed with the values of centuries of leisured life.

It seems opportune, therefore, to examine some English villages with two ends in view: first to discover some of the points of interest, beauty, and historic and other associations which give a country village a claim to attention on its own account; and secondly to realise something of the stores of inspiration that can be drawn from it by the modern architect and town-planner, not in imitation, but by adapting to modern urban requirements some of the lessons which experience taught the small village community during former years. Of the intrinsic value and interest,

An Essex Windmill at work.

and of the bearing on modern development which English villages offer, only a very slight indication can be attempted in the following study. Its object is rather to stimulate independent personal observation than to deal exhaustively with a many-sided subject.

Regarding the preservation of villages, it is not always suitable or feasible that a picturesque village should be preserved entirely unchanged from its old form simply as a "museum piece." A village is still the place where a number of present-day men, women and children live, as well as being the objective towards which the tourist turns in search of beauty and interest. The need is therefore great for knowledge, sympathetic appreciation, and a sense of proportion in bringing the results of old and new growth into harmony. Age alone is not always a virtue in itself, unless associated with fitness for function, or with beauty, or with some point which provides a basis for profitable or pleasurable thought. It must inevitably happen that some objects are superseded by others, better adapted to the needs of a later age. The older objects, however, may be worthy of respectful preservation from a historical point of view, or as being pleasing, instructive, or otherwise interesting in themselves, or as inducing reflections, although no longer of practical use. In the preservation of an English village a discriminating conservation of old buildings, and other objects no longer of evident practical use, has to be effected in what may be termed an *artificial* manner. Had they remained part and parcel of the everyday life of the community their preservation would have come about naturally; as it is, they must be preserved by thought-out methods and by conscious care.

Some of the objects that must be so preserved are worthy of care as records of former methods of meeting needs, some as things of beauty, some as examples of craftsmanship or ingenuity, some as simple "curiosities." The ancient water-mill and windmill have their rights as monuments to the development of industrial machinery. The whipping-post reminds a more sensitive generation of the earlier attitude of society towards offenders against its codes. Certain features of a country village may continue to justify their existence. The ponds, not only by daily refreshment of farm horses, but also when requisitioned for their engines by the makers of modern motor roads; or the village washerwoman's drying ground may be occupied by the up-to date laundry. The smithy may survive for new phases of an ancient craft. The village well, or its successor the parish pump, may retain its position of usefulness, or it may be superseded already by the pumping station at the neighbouring town, while the expeditions of Jack and Jill are rendered superfluous by the presence of water-taps from the main into the houses. The local lock-up is succeeded by modern police methods, and the stocks and pillory yield place to the newspaper paragraph. But the English village still holds its unique place, not only within the nation itself, but in the eyes of peoples overseas, turning thither in memory or in anticipation or in actual fact, because there is literally "nothing like" English villages in any other part of the globe. The preservation of their best characteristics is therefore a matter of serious public concern and of great urgency when spoliation is so speedily effected.

All over England are to be found examples of four types of village. First there is the "green" village; secondly, the "street" village; thirdly what may be termed the "feudal" type of village, which includes those centred around a monastic building. Finally there is the "trade" or industrial

A Suffolk Smithy.

Man-Made beauty in Rural England.

Oak Tree, marking some ancient place of assembly.

village. The characteristics of these four types may intermingle one with another. For instance, the monastic village may become a trade village owing to some natural product being found there and exploited by the inhabitants. The various sources of origin may influence one another, and it may be a little difficult sometimes to determine into which class a given example falls. But it is generally possible to classify a village according to some dominating characteristic of its lay-out, and for purposes of examination and analysis division into categories such as those suggested is a useful method.

In the first type which may be called the "green" village, as being most descriptive of its lay-out, the dwellings, church, public buildings, and such trade buildings as may be distinct from dwellings, are disposed in a more or less formal manner around a central open space. Each building or group of buildings may be independent, and different from the others in size, function, materials and design, as well as in date of erection; but there is a unifying effect in the very existence of the common centre, the village green. A village of this type is commonly found on high ground rather than in a valley. This is an indication of very early origin. It is apparent that such a village dates from Celtic times rather than Saxon. As regards agriculture "the Britons were a hill-folk dwelling on hill-tops, from which their fields spread down into the valley. The Saxons, on the other hand, were a valley-folk and laid out their fields in such a way that they radiated out from their valley homes and crept up into the hills."*

The village green itself may be roughly circular or rectangular, or disposed, at the present time in a patchwork of grass, ponds and paths. Its origin lies probably in some remotely ancient centre for the exchange of goods, at a junction of pre-historic trackways, when settlements were few and far between. To-day the green still finds an appropriate community function as a gathering-place for gossip, as well as for the more serious ceremonial of national occasions. The mediæval revels beneath the maypole are represented by the games of local cricket or bowling clubs, and by the still spontaneous romps of the schoolchildren. One of the principal functions of the village green in former days was that of amusement centre. It is significant, therefore, that this function is now regarded as of such importance that the provision of "playing fields" and recreation grounds is considered one of the most serious of public needs, and thousands of pounds are spent upon this matter alone. It is not only the rural villager of to-day who is provided with the modern equivalent of a "village green" developed partly from the idea of the public-schools playing fields, but the industrial worker, too, is given similar opportunities for exercise and recreation, almost as a matter of course. The suburban tennis clubs occupy acres, and many a business and professional man accepts facilities for playing golf almost as naturally as he accepts a water supply. Indeed in the development of the Crown lands in Swinley Park as a residential area stress is laid on the fact that the golf course itself will be the principal attraction and the definite centre for the growth of the area. A description of the proposed future development contains the assurance that "the village will certainly be a scattered one with plenty of open spaces and foliage." It may be open to question whether a "scattered" village necessarily implies a beautiful or a pleasant one, particularly if, as the same reference states, "the type of building lay-out will depend on the tastes of the persons who wish to obtain leases." A reference, however, to such a case as this in actual process of development serves to show how inevitable, if unconscious and sometimes unexpected in its effect, is the influence exercised by the "traditional" English village upon modern development.

(To be continued.)

* Curwen. "Prehistoric Agriculture in Britain." Antiquity. September, 1927.

ON STATUES AND RECORDS

BY MANNING ROBERTSON.

THE problem of house room for statues and memorials in Westminster Abbey leads one to question our attitude towards memorials—our tolerance of unnecessary and undesirable statues. There may be some excuse for monuments to those who were intimately concerned with the place where the memorial stands, but when we consider the extent to which we are becoming over-burdened with souvenirs and records of every kind, we must expect that our descendants will one day turn upon all this accumulated mass and wreck it in one hideous and comprehensive ruin. If we continue to produce books and periodicals, and to keep them, in the way we do at present, in a hundred years' time we shall find ourselves with a town of storehouses devoted to no other purpose than the preservation of books, and how will any serious student ever find anything he wants in such an ocean of paper? The problem of memorials will get worse. Our churches will be blocked up, their architectural effect destroyed, and the parks will accommodate more statues than people.

One way out of the difficulty might be that it should be understood that no statue or memorial should be erected to a public man until he has been dead for a hundred years. By that time we should be able to estimate his contribution to the world and judge whether or no this was worthy of commemoration. We should also have time to think of something better than the first idea that came into our heads. What is our present-day procedure? Sir Jonathan Blunger, let us say, expires, and, having no further use for it himself, he very rightly leaves a field as a public playing-ground. Grateful citizens immediately start a collection and put up a statue to him. If the statue is *per se* a work of art this may be a reasonable thing to do, but none of the grateful citizens really care whether it is a work of art or merely an unattractive representation of a big man with an umbrella. His colleagues want a memorial to him, and so long as they get it and stick it up somewhere they are satisfied. Such a monument serves nobody except the people entrusted with putting it up, and they might be better employed. Some practical piece of work, a bridge or tea-house, with an inscription, would preserve kindlier memories of Sir Jonathan than the exposure of his physical ungainliness.

But while memorials of some kind to donors of parks and the like can be defended, it seems indefensible to be putting up such a number of statues to politicians and public servants. The politician is not like the scientist who, too often, works unrewarded and recognised, and the raising of monuments indiscriminately in honour of politicians is surely carrying the principle of "to him that hath shall be given" to an absurd length. Supposing it had been the practice never to raise memorials until people have been dead for even thirty years, our cities and cathedrals would be pleasanter places to-day. The average memorial is an attempt to snatch at an immortality that a man does not necessarily in the least deserve. The greater the man the less the need for any memorial or outward honour. We put up memorial to Shakespeare, Newton, Darwin, in recognition of a public demand, not in an attempt to create a demand. It is remarkable that when titles are conferred upon distinguished men they are rarely used.

This is a side issue, and the point is that sooner or later we shall have to call a halt to our accumulations of statues and documents. The fire in the Dublin Four Courts destroyed much of the history of Ireland: vast numbers of old manuscripts had never even been read, and if people had never found time to read these in a country where academic research was fairly well carried out, what chance will any unfortunate possess who finds himself in one of our store-houses of the future?

There is a movement on foot to comb out and eliminate some thousands of tons of useless literature, and it would be wise for us to destroy at the same time a corresponding quantity of the worst statues, in case our descendants, in their frenzy, should fail to discriminate between those that are of value and those that are not, and so make an end of them all. The same problem can be seen in miniature in every household. The odds and ends that "might come in useful," pile up and up until, as in an Icelandic geyser, the pressure of the accumulations causes an explosion, and husband and wife devote a Sunday to relentless destruction, when peace again reigns for a space. But it is difficult to see how a community can agree about anything of this nature. In the literary field, to some, the works of the Nat Gould school must be sacrosanct as embodying the traditions of the nineteenth-century Turf; every suggestion to scrap anything will find a powerful opposition, and one doubts whether it will ever be possible to find one single committee prepared to pass a resolution to the effect, "that the statue of Sir Jonathan Blunger, being exceedingly ugly, shall be removed forthwith." His collateral descendants would make too much fuss. Everything of the kind that we put up seems to be fixed in position for ever, and presumably we shall eventually have to evacuate the country, since every available space not given over to storing records will be occupied by statues.

A Village around its Green.

HINDU ARCHITECTURE IN JAVA

THE TEMPLES AT PRAMBANAN.

BY W. ROBERT FORAN, F.R.G.S., F.R.A.I., etc.

(Illustrated with photographs by the Author.)

EASTWARD of Kalasan and Sari are the impressive ruins of the Prambanan Temples, also called *T'jandi* Loro Djonggrang, after a Javanese Princess who was responsible for a most delightful legend. The history of these ruined temples, read in conjunction with this native legend, is interesting. The traditions of the Javanese folk in the neighbourhood make mention of a giant Prince, named Ratu Boko. His place of residence must be sought in the so-called *Kraton* (palace) of Ratu Boko, a ruin somewhat to the south of Prambanan. This much seems reasonably certain, namely, that this *Kraton*, where can still be traced the rubble of hundreds of buildings, was formerly a princely residence, and perhaps even the capital of the King of Mataram The daughter of this legendary giant Prince, the Princess Loro Djonggrang, gave rise to the building of the temples at Prambanan, if native legends have not gone astray, inasmuch as she had laid—as she thought—an impossible task upon a youth who aspired to her hand in marriage and whose suit she dared not reject.

Eventually, according to the native legend, the Princess promised to marry her suitor on condition that he should erect a temple with a thousand statues and complete this herculean task within the course of a single night. Among the friends of the youth were some very powerful gnomes, and these accomplished his superhuman undertaking in the stipulated time with the sole exception of one statue The Princess, perceiving that the youth was going to win her hand, contrived by trickery to frustrate the completion of the thousandth statue. This so enraged her suitor that he pronounced a curse upon her, and forthwith she was changed into stone. Her petrified figure thus completed the thousand statues. The Javanese still believe that the female statue in the temple of Siva is the petrified figure of the Princess; in actual fact, it is the statue of Durga, the virgin goddess and Siva's consort.

Unlike the other ruined temples on the Prambanan Plains, which are nearly all Buddhist, the temples of the Prambanan group proper were designed for the public worship of Siva. From statues discovered here it is made plain that the Prambanan Temples were dedicated to the Trimurti, the Holy Trinity of the Hindus, with a marked preference for Siva, who sits enthroned in the largest temple of all The fact that Buddhist and Siva temples stand almost cheek by jowl only serves to confirm the belief that these two sects lived peaceably side by side, and that the ruling princes showered their favours and wealth impartially upon either; ancient records also tend to prove that this was so.

The Prambanan Temples stand upon a great four-sided field, encompassed by a square enclosing wall; and there are six large and two small temples in the group. At the time of the author's visit, January, 1926, they were in the slow and arduous process of restoration by the Archæological Survey of the Dutch East Indies. But so much damage has been done to them in the past that they can never be restored to their former grandeur; and the work was progressing in the leisurely fashion so typical of the indolent Orient.

If you enter the enclosed ground by the gate in the southern wall, you behold, in the south to north direction, two rows of three temples each, collectively forming an alley-way. Those of the western row are the largest, and their entrances face those of the temples in the eastern row. The alley-way is closed off at either end by a small temple situated just to the east of the north and south entrances to the outer wall. The northern one is an utter ruin and has nearly disappeared from view; but the southern one is a trifle better preserved.

The middle temple of the western row, dedicated to Siva, is the largest of them all, and, therefore, the principal temple of the group. The northern one of this row was dedicated to Vishnu, and the southern to Brahma. In the centre temple of the eastern row was discovered a gigantic Nandi, the bull used by Siva as his mount, together with a statue of Surya the Sun-God, and of Chandra the Moon-God. In the north temple of this row was discovered a very mutilated statue of Siva, and the extraordinarily handsome head of this image, which lay loose beside it, is now stored in the Museum at Batavia. The Garuda pedestal in this temple, the mythical bird ascribed to Vishnu as his mount, was brought here not so very long ago. It did not really belong to Prambanan but to Telaga Lor. In the south temple of the eastern row nothing was ever found.

Parallel with the inner enclosing wall, and at a distance equal to half the length of one of these sides to the square wall, is a second wall, also square in shape. It also has an entrance in each of its sides. Between these two enclosing walls is a treble belt of little shrines, numbering, respectively, 44, 52 and 60 small buildings. On the east side, to the right of the main entrance in the second wall, stands yet another shrine, which, owing to the spot where it has been erected, may be considered as the first of a fourth, but never completed, belt of diminutive shrines. The majority of these encircling shrines have already disappeared, and not a single one of those still remaining is undamaged. There was formerly a third enclosing wall, but its sides did not run parallel with those of the two outer ones.

When these ruined temples were surveyed, pits, both large and small, were found in all of the main buildings. These pits were not dug in the ground but left open in the foundations of the temples, constructed above the soil. A number of these pits were empty, but in others were discovered the ashes of animals, partially burnt bones, small gold and silver ornaments, little coins, small stones out of rings, brass clippings, silver and gold plates, and so forth. It is often claimed that this temple group was nothing more than a burial ground and that each temple can be regarded as a mausoleum, and that over the pit, intended as a grave, was erected a statue of a god by way of a monument to the deceased. Those who entertain this view insist that the large temples were the tombs of princes, while the smaller buildings were those of the priests or high dignitaries of the Court. However, it is a matter for grave doubt whether these beliefs can be accurate. Yet colour is lent to this theory by the fact that the Prambanan group is principally dedicated to Siva the Destroyer, who is supposed by the Hindus to haunt cemeteries and burning-*ghats*.

The six principal temples within the inner enclosure are all built upon the same ground-plan. A horizontal section discloses a square, to each side of which is attached a projecting rectangle, resulting in a twenty-angled whole in the shape of a Greek cross with projecting angles. The body of the temple proper, the cube of the temple, rests upon its sub-base upon a terrace, which may be rightly regarded as a second or lower-lying sub-base In the case of the Siva temple, this lowest sub-base is richly ornamented with lions set in niches, flanked by shallow niches in the back walls of which are richly fashioned trees carried out in bas-relief.

The upper sub-base, the foot proper of the temple, has carved representations of gods (or, perhaps, of princes attired in godly regalia) sitting after the fashion of Buddhas. What these reliefs actually represent is not certain, though it is often thought that some of the central figures carry various attributes of the Hindu deities. At each of the four sides is a stone stairway, which leads up to the terrace, and these steps, the topmost of which lies higher than the level of the terrace, end in a small platform from which one must descend by another small flight of steps on either hand to enter the gallery which leads between the parapet and the foot of the temple. Upon this foot rises the body of the temple, richly adorned; and it was formerly crowned by a roof doubtlessly also richly ornamented.

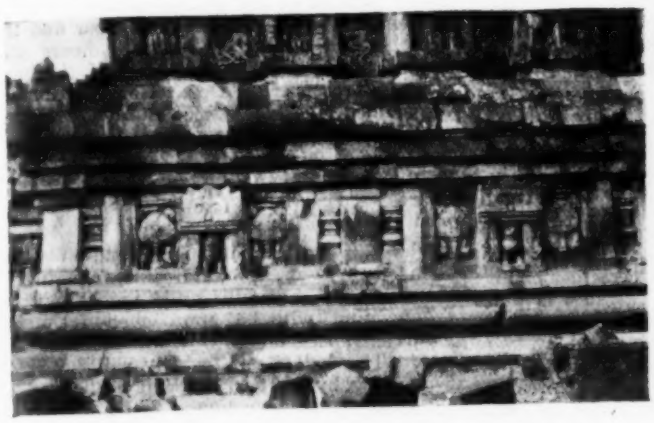
The remaining temples, though built on the same model, in so far as details are concerned, are simpler accordingly as they are of lesser size. Thus it is only in the Siva temple that little shrines are found set in the angles formed by the projecting stairways; while only in the temples of the western row does the terrace exhibit the twenty-angled form. In the temples of the eastern row, this lower sub-base is an ordinary square. The Vishnu and Brahma temples also have galleries with a parapet, likewise decorated with reliefs on the inner side. It would appear from the existing remains that these temples were ornamented with large and small *gopuras* (gateways). One broached, for instance, the small platform (described above) through a gateway, only to descend after that through little gateways to the gallery, or else, through a fourth gateway, to climb a second stairway which led to the interior of the temples. Gateways formerly must have stood at the bottoms of these stairways. The whole mass of these temples, when originally planned and executed, must have afforded an indescribable impression of magnificent splendour.

There is little to be said of the interior chambers of these temples They all possess but a single chamber, with the sole exception of that dedicated to Siva; this latter building has four chambers—one large and three small rooms. In the largest room stands a figure of Siva, or Mahadeva, as this great Hindu god is sometimes called. He is a less human and more mystical god than Vishnu. In the small rooms are statues of Siva depicted as the great ascetic; of Ganesha, the son of Siva with the fat body and an elephant's head; and of Durga, or Kali, Siva's consort. Originally, Durga was a virgin goddess; and the gods granted her the shape of a woman with eight arms. In her hands she brandished weapons with which she fought the demon Mahisasura, who had usurped Indra's throne. She is generally represented as standing upon a buffalo, the disguise which the demon had adopted, just at the moment when she killed the buffalo and overpowered the demon. She is seen gripping the latter by the hair as he escapes from the buffalo's body. The statues of Vishnu the Preserver and Brahma the Creator are in the outside temple of the western row.

In the Prambanan temples it may be justly claimed that the Hindu-Javanese architecture reached the culminating point of its florescence, its greatest wealth of ornamentation. Perhaps it would not be wrong to insist that it had even overstepped the highest point, for in some details many argue that decadence is already perceptible. Prambanan, or *T'jandi* Loro Djonggrang, forms a transition between the strictly classical architecture of Central Java, represented by the Borobudur Temple and *T'jandi* Mendut, and the art of East Java which developed itself after the ancient Kingdom of Mataram had collapsed. The temple-complex of Prambanan, however, only displayed its splendour for a very brief while after its foundation about the tenth century. It was even abandoned before the infinite labour devoted to its construction was brought to completion. The want of ornamentation in some places indicates this fact very clearly, while a com-

parison with corresponding portions of other temples shows definitely that its architects originally intended to add to that ornamentation. All the decorations on the innermost enclosing wall are lacking, which could not have been the original intention.

These few relics of ancient Hindu art in mid-Java, selected from the vast number known to exist, tend to make one marvel at the ingenuity of the builders and still more at the amazingly artistic skill of the architects. When one remembers the treatment to which they have been subjected during the past eleven or twelve centuries, one cannot avoid a feeling of deep admiration for those great artists who designed these temples and for the labourers who put their plans into execution.



Exterior Wall Decorations of Vishnu Temple.

Bas Reliefs on Exterior Wall of Siva Temple.

Stairway to one of Smaller Temples in Eastern Row.

Image of Durga (Kali) the Consort of Siva.

Some of the Collected Remnants of the Temples.

A Facade of Siva Temple.

Temple of Vishnu in Western Row, as seen from Siva's Temple.

THE TEMPLES OF PRAMBANAN.

OUR ILLUSTRATIONS

"The Builder" Calendar.

We present with this issue *The Builder* Calendar for 1928, the feature of which is a reproduction of a pencil drawing of St. Paul's Cathedral as seen from the north side of the river, by Mr. Joseph Pike.

Works by Sir Edwin Cooper.

The illustrations which we give this week of Sir Edwin Cooper's work indicate the possibilities of getting good architectural effect in every kind of building, from the cottage to the palace. Though the roadside cottages by Sir Edwin are simple in the extreme, they have that vital quality of good outline and nice proportion of parts which can be obtained in small dwellings just as effectively as in the great palaces devoted to modern commerce. Then, again, in the small timber trade office for the Port of London Authority we see that pleasant architectural interest may be obtained in a very simple, unimportant building. The Star and Garter Home at Sandgate, in its picturesque form and effective grouping, is witness to the versatility of the architect, whose fine blocks of great buildings for the Royal Mail and Lloyd's are illustrated with the above.

The Royal Mail Building, Leadenhall-street, of which we give a perspective view, is now beginning to emerge from the surrounding scaffolding, and forms another addition to the striking buildings which Sir Edwin Cooper is erecting in the City. The general contractors were Messrs. Trollope & Colls, Ltd. All sub-contractors will be given later when the buildings are fully illustrated by us.

The Leadenhall-street main entrance to Lloyd's new premises, which will be completed and opened during the year, shows how the architect has made this a striking and dignified feature of the great building into which it leads. The general contractors were Messrs. J. Mowlem and Co., Ltd.

The P.L.A. Offices, West India Dock, are carried out in brick with Portland stone quoins. We give this week the entrance to the building, which is at the South West India Dock.

The Star and Garter Home, Sandgate, is a home for disabled sailors and soldiers at Sandgate, near Folkestone, and is now practically complete.

The P.L.A. Offices at Timber Yards, Surrey Commercial Docks, have been carried out entirely in brick with a low-pitched tiled roof.

The roadside cottages in Sussex are in Sussex brick, the tiling and other materials being also of local origin. They depend largely for their charm upon the simplicity of their design, the darker brick quoins combining with the jalousies and the tile-edge architraves of the windows to give a most pleasing effect.

"The Tower of Babble."

This satirical fantasy is intended to show the contrast between architecture of the old civilisations and the soaring ambitions of commerce. Professor Richardson has indicated how "demoniacal energy has penalised the old pacific transitional life." He refers to the congregation of multitudes in cities as resembling "the giant ant-heaps of Africa."

The Army and Navy Stores.

We illustrate two views of the rebuilding of the Army and Navy Stores, Victoria-street, Westminster. The inset plate shows the new Victoria-street front, a portion of which is now being built, in red brick and Portland stone. The contractors are Messrs. Dove Brothers.

The illustration in the text shows the Francis-street end of the new Howick-place block. No contract for this work has yet been placed. It is proposed to face the building with Portland stone, and to incorporate in the design a somewhat novel system of window lighting for the showrooms on the upper floors.

Sir Aston Webb & Son are the architects.

The general contractors are Messrs. Dove Bros., Ltd., and the principal sub-contractors are Redpath Brown & Co., Ltd., steelwork; Mather & Platt, Ltd., sprinklers; Express Lift Co., Ltd., lifts; Benham & Sons, Ltd., cooking apparatus; Jeffreys & Co., heating apparatus; Crittall Manufacturing Co., Ltd., metal windows; Diespeker & Co., Ltd., floors; E. Pollard & Co., Ltd., metal fronts; Samuel Haskins & Bros., Ltd., fireproof shuttering; and T. Webster, Ltd., decorative plastering.

London Life Association Building, King William-street, E.C.

The new premises of this Association are in King William-street, E.C.4, lying between Clement's-lane and Nicholas-lane. The main elevation is 130 ft. in length, the plan of the site being triangular. As will be noticed from our illustrations, there is no projecting plinth to the building. Such a plinth would have been unnecessary in a steel-framed building, besides taking up a certain amount of ground space. The main entrance is well framed and decorated with some fine carving of the Association's shield supported by two *putti*, while two more of these small figures adorn the upper angles of the archftrave. This sculpture has been carried out by Mr. C. L. Hartwell, R.A. The central portion of the façade acts as base for the coupled-columned treatment above. The left and right wings of the building are in the form of pilastered bays, with pediments broken at the apex and decorated with, on the west, two women, and on the east, two men, symbolising Wisdom, Foresight, Unity, and Security. These figures are the work of Mr. Herbert Palliser. The ground floor is devoted mainly to the public office, the central hall being about 100 ft. long and 26 ft. wide. The centre of this space is rectangular in plan with a square apartment at either end. At the farther side of the hall, opposite the entrance, is an apse. The walls are lined in Portland stone. The remainder of the space on this floor is given over to the use of the administrative staff, the clerical staff being accommodated in the basement. The three floors above the ground floor are not used by the Association, being let as private offices, reached from a separate entrance at the south side of the building. The fourth floor, however, contains the various rooms for the directors of the Association. The building throughout has been decorated by Mr. L. A. Turner with modelled work. Mr. W. Curtis Green, A.R.A., F.R.I.B.A., was the architect.

The general contractors are Messrs. Trollope & Colls, Ltd., and the following are sub-contractors:—Jeffries, heating and ventilating; C. Isler & Co., artesian wells; Kleine Patent Fire-Resisting Flooring Syndicate, Ltd., floors; Crittall Manufacturing Co., Ltd., windows; Waygood-Otis, Ltd., lifts; S. Haskins & Bros., Ltd., rolling shutters; John Bolding & Sons, sanitary fittings; Birmingham Guild, bronze grilles and entrance lift enclosure; Cashmore Art Workers, lead work (cast); Tredegars (1923), Ltd., electrical and vacuum cleaning installation; Art Pavements and Decorations, Ltd, wall tiling; Robinson's, Shoreditch, cork flooring; Merryweather & Sons, Ltd., fire appliances; Trollope & Sons, board-room fittings, furniture, panelling, etc.; Mr. Charles L. Hartwell, R.A., carving, statuary over doorway; Mr. L. A. Turner, general carving; Mr. H. W. Palliser, statuary over pediments.

Lloyds Bank, Ltd., Cornhill and Lombard-street.

This new building, now in course of erection, is situated on the site of the old City office, but covers a considerably larger area, owing to the acquisition of adjoining properties. The site has frontages to both Cornhill and Lombard-street of 146 ft. 6 in. and 198 ft. 5 in. respectively, and will be contained within the lines of Change-alley on the east and Pope's Head-alley on the west. In the case of the latter, the alley is being moved to a position about 50 ft. farther west.

The new premises will house both the City office and the head office department. The accommodation will be provided in a building which will rise eight stories above the street level on both fronts. Three basement floors will house the strong rooms and certain common administrative offices. The City office will occupy the ground floor, and the major portion of the mezzanine floor above; the remainder of the mezzanine floor and the first, second, third, and fourth floors will house the following departments of the head office:—Treasurer's Department, Advance Department, Chief Accountant's Department, General Management (Administration), Staff Department, Chief Inspector's Department, Premises Department, Secretary and Shares' Department, Income Tax Department, Information Department.

The banking hall on the ground floor has been planned on an axial line, equidistant between the Cornhill and Lombard-street fronts, and will be approached from the main entrances on both fronts at the west end. The hall itself, which will be about 67 ft. long by 36 ft. wide, will be flanked on all sides by Ionic columns 27 ft. high, supporting an enriched entablature and a decorated plaster ceiling. Light to the banking hall will be obtained from a large roof light in the ceiling.

In addition to purely office accommodation, separate luncheon rooms will be provided for directors, general managers, assistant managers, City managers, chief officers, and a staff luncheon room to seat 200. A light refreshment room will also be provided. There will be, in addition, recreation rooms for men and women.

Sir John Burnet & Partners and Messrs. Campbell Jones, Sons & Smithers are the associated architects.

The consulting engineer is Dr. Oscar Faber, D.Sc.; the quantity surveyors, Messrs. Harris & Porter; and the clerk of works, Mr. F. J. Camp.

The general contractors are Messrs. Trollope & Colls, Ltd., and the sub-contractors engaged to date are as follows:—Messrs. B. Goodman, Ltd., demolition; Redpath Brown & Co., Ltd., constructional steelwork; Faldo & Co., Ltd., asphalting; Isler & Co., Ltd., artesian wells; Waygood-Otis, Ltd., elevators; Fenning & Co., Ltd., granite and marble; Birmingham Guild and H. H. Martyn & Co., bronze work; Chatwood Safe Co. and Milner Safe Co., Ltd., strong-room doors and grilles.

Government Offices, Pretoria.

A description of this work was given by Sir Herbert Baker, A.R.A., in a paper read before a meeting of the R.I.B.A., which was reported in our issue for November 25, 1927.

Church of Our Lady and St. Alphege, Bath.

This church is built on a level site in Oldfield-lane, Bath. In style it is of the basilica type. The walls, both internally and externally, are of Box ground stone, the surfaces generally being of roughly coursed rubble work, while the quoins are more carefully worked. The internal columns, with their carved caps and bases, are of Leckhampton stone. There is an open timber roof, of flat pitch, which will be covered externally with special Italian tiles.

The church consists of nave, chancel, and aisles, the eastern end of the north aisle forming a side-chapel. The sacristies are placed on the south side of the chancel. There is a small western gallery. At the north-west corner of the church is a campanile, the lower stage of which forms the baptistry. The entrance to the church is through a colonnade at the west end.

The general contractors are Messrs. J. Long & Sons, Ltd., of Railway-road, Bath. The caps to the columns are carved by Mr. W. D. Gough, of Magee-street, Kennington Park-road, S.E.11.

Sir Giles Gilbert Scott, R.A., is the architect.

Memorial Church, Ypres.

The Memorial Church at Ypres is being erected by subscription as a memorial to Viscount Ypres, and in connection with it a school is being built by subscription in memory of old Etonians who fell in the Ypres salient, and it is hoped to erect a parsonage house. The church has a nave with a barrel roof, without aisles, a chancel, vestry, choir vestry, organ chamber and heating, with a small baptistry at the west end. The materials are thin yellow bricks, as used on the old ramparts, with Euville Marbrier stone dressings. The tower, erected on the north side over the entrance, is to have a wooden flèche covered with copper. In regard to the design, by the expressed wish of the inhabitants of Ypres, this has followed, so far as possible, the Flemish manner of the sixteenth century. The east window, by Messrs. Bell, will be presented by the Guards Division; the west window by the 3rd Corps, in conjunction with 4th and 6th Divisions; and one of the windows on the north side by private donors. The large hanging Cross behind the chancel arch has been given by the 23rd Division.

Sir Reginald Blomfield, R.A., & Son, are the architects, and M. Jules Blaton, of Brussels, the contractor.

House in Huntingdon-road, Cambridge.

The nucleus of this house was a fine old timbered barn which formerly stood a few miles from Cambridge. This was pulled down and re-erected on the new site in Huntingdon-road, and with a few modifications and additions forms a very interesting little house. Messrs. Baillie Scott and Beresford are the architects.

House in Storey's Way, Cambridge.

The elevations of this house are strictly symmetrical and of Georgian character. Local bricks and pantiles are used externally and the interior is very simply finished. Messrs. Baillie Scott & Beresford are the architects.

Trinity Hall, Cambridge.

The illustration given in this issue shows the old library of Trinity Hall, with the new gatehouse building in the distance. The library was built between the years 1560 and 1584, and is one of the most interesting in Cambridge. The window dressings, which have been recently restored, are of clunch from quarries at Cherry Hinton, but in all cases the cills were worked in stone. The face of the clunch was completely decayed, but, on being scraped, the work behind was found to be solid. None of the heads was replaced, and more than half of the jambs were retained. All the mullions were renewed.

An interesting feature is the curious doorway at the first floor level. Till the restoration this was blocked up with brickwork, though the jambs and head, considerably decayed, could be seen On removing the filling-in, the original oak door, with its ironwork, was found to be complete and undamaged. In the seventeenth century a wall with a battlemented top connected the library with the Master's Lodge, and the door in question was the private entrance of the Master. It is probable that the wall was pulled down when the old buildings of the first court were refaced in the Georgian manner in the eighteenth century.

The gatehouse building contains undergraduates' rooms and is built of red bricks with Weldon stone dressings. The roof is covered with sand-faced red tiles. At the back of the building, through the archway shown in the illustration, is the old gateway, which was removed from the east side of the college when the new buildings adjoining Clare College were built in the nineteenth century. Originally the gateway was the principal entrance to the college, but when it was pulled down the stones were thrown away. Shortly after it was suggested that they might be recovered and put up again as a garden entrance from Garrat Hostel-lane. The Master of that period purchased them from a firm who had acquired possession of them, and the old gateway was rebuilt in its present position about fifty years ago. The new building was put up without in any way disturbing it, and now, after many vicissitudes, the old archway once more forms an entrance through a building.

Messrs. Hoare & Wheeler, FF.R.I.B.A., are the architects.

The builder was Mr. W. Sindale, of Cambridge, and the following were sub-contractors :—Stuart's Granolithic Co., London, concrete floors and flat over gateways; Burt & Potts, London, casements; Bailey, Grundy & Barrett, Cambridge, electric work; Burn Bros., London, heating.

Collège Britannique, Cité Universitaire de Paris.

The site of this new building is in the Cité Universitaire at a point on the line of the old, and now demolished, fortifications, near the old Port d'Italie, and close to the Parc de Montsouris. The College is to have a good position westward of the French College and southward of the Belgian, and of the site of the American College. The British site has the advantage, like the French site, of being upon the southern limit of the ground, and the immediate northern limit of the Park to be formed along the College frontages.

The first portion of the College, for which estimates are to be taken as soon as possible, is what is known as Block "B," forming the western boundary of the whole quadrangular scheme, and providing rooms for about 60 women students and including the matron's rooms, a large common room or drawing room, and a large writing room, with the necessary complement of bathrooms, lavatories, service rooms, and, in the basement—kitchen, scullery, larder, stores, servants' rooms, servants' hall, box-room, lavatories and supplementary bathrooms, brushing room, etc. The College is intended to provide residence for male and female students, in the proportion of about 150 women to 120 men, and to contain also the Master's dwelling-house, placed near the north-east entrance, and several servants' rooms.

The plan, and the architectural character of the buildings which it has been specially desired to keep in general conformity with the collegiate manner of Oxford and Cambridge, is that of an oblong quadrangle, whose internal dimensions are : length east to west 155 ft., width 85 ft., and, comparatively with the Oxford quadrangles, would occupy, in total area, about a middle position.

The treatment of the south side is symmetrical, with a central tower and a gateway for general use of ingress and egress to and from the park, for students of both sexes.

The north-east entrance, under a smaller gate tower, is reserved for men, and the gateway at the north-west corner exclusively for women, both opening upon the street. Over the range of buildings between these gateways, and forming the highest feature of the College, is the hall, internally 84 ft. long by 32 ft. 6 in. wide, which is intended to contain a gallery at one end, and whose high roof, of open timber construction internally, will form the dominant feature of the northern side. In the basement of the south-east wing of the men's quarters is a plunge bath 21 ft. 6 in. long by 9 ft. wide, as well as a range of lavatories, etc. A restaurant or 'tuck shop' is provided, for use by students of both sexes, below the western end of the hall, with a wide staircase and a lift for access to the hall and to intermediate floors.

The materials to be used are pinkish buff small bricks for general facing, and a French oolitic stone, in character much like Portland, but less white in tone. The roofs are to be covered with plain tiles of a pleasant colour, dull red to grey. The whole building has been carefully planned and designed with the intention of realising a typically English effect. The lay-out of the park on the north side is, we are informed, to include fields for football and hockey, and tennis lawns. It is further intended to establish in a central position a large restaurant, and men's and women's swimming baths, so that the general amenities will be well cared for.

No contract has yet been entered into for this work, as the plans, in regard to internal disposition, have only just taken their final form.

Mr. Edward Warren, F.R.I.B.A., is the architect.

English Sewing Cotton Co.'s Building, Manchester.

This building is situated facing the Parsonage Gardens, where the Church of St. Mary once stood. Consequently the site is a valuable one architecturally, owing to the fact that the front elevation of the building can be seen as a whole from a viewpoint a reasonable distance away. The building comprises sub-basement, basement, ground, and seven upper floors, the sub-basement being devoted to heating chamber and machinery space and the top floor to caretaker's flat.

The front elevation is in Portland stone, designed in the Classic manner, having pilasters facing the gardens; when completed it will be a symmetrical elevation. Advantage has been taken of the approach to the building by St. Mary's-street. The main entrance is situated at the end of the building facing this street, and this has been marked by a pavilion having two detached columns. The Southgate frontage and the Parsonage frontage will also be in Portland stone. The back of the building is designed in buff-coloured brickwork with artificial stone dressing.

The ground floor, halls and corridors will be treated in Roman stone, the staircases tiled, with terrazzo steps and bronze balustrades. The woodwork finishing generally will be in mahogany. There are four high-speed lifts and one staff and goods lift. The heating apparatus is designed for low-pressure hot water, and a vacuum-cleaning installation will be provided.

The general contractors are Messrs. Robt. Carlyle & Co., Ltd., of Elsinore-road, Old Trafford, Manchester, and the following are sub-contractors :—Banister, Walton & Co., Ltd., Trafford Park, Manchester, steelwork; Wm. Wadsworth & Sons, Bolton, lifts; Fenning & Co., London, granite; Walter Macfarlane & Co., Possilpark, Glasgow, cast-iron breasts; the Trussed Concrete Steel Co., London, floors; the Christie Patent Stone Co., Stretford, Manchester, artificial stone; Simpson Bros. & Co., Salford, terrazzo steps; Earp, Hobbs & Miller, Manchester, stone carving.

The Old Hall, Sundridge, Kent.

This drawing shows the additions built on to a remarkable old mediæval hall in the main street of Sundridge. The front is well known and has not been altered, but the back, in which no old features remained, has been taken for the position of a new staircase, gallery, sanitary and bedroom wings, so that in the view only the roof of the old front building appears.

The work was recently done for the proprietor, Mr. C. P. Munn, by Professor Beresford Pite. A description and plans of the old hall before the additions appeared in *Archæologia Cantiana*, Vol. XXXVII, 1925.

Gas Showroom, High-street, Dudley.

The Town of Dudley Gas Light Company have recently opened this building in the High-street, Dudley. There is a showroom on the ground floor divided into alcoves, and various period fittings have been arranged. The basement is another showroom, used more particularly for the exhibition of gas cooking apparatus and gas heating. There is also a public lecture room on the first floor.

Messrs. John Guest and Son's Successors, Amblecote, Stourbridge, were the contractors, while the fibrous plaster and panelling, counter and bronze grilles, and also the "Guildstone" surround to the shopfront, were carried out by the Allied Arts and Crafts Guild, Birmingham. Mr. A. T. Butler, F.R.I.B.A., Dudley, was the architect.

Broadway Super-Cinema, Stratford.

This cinema, which we illustrate this week, is in Tramway-avenue, one minute from the Broadway. The entrance vestibule is a spacious colonnaded and marble-lined apartment forming the approach to all parts of

the house. The auditorium and balcony are approached by spacious Roman stone steps. The auditorium is capable of seating over 2,000 persons, every seat having an uninterrupted view of the stage. Wide side promenades give convenient access to all parts and admit of considerable standing space. Adequate exits are provided from all parts of the house. The balcony, seating about 1,000, is approached from the vestibule with the minimum number of steps. The orchestra is enclosed with a marble balustrade, and is large enough to hold comfortably 40 performers. It is fitted with a Wurlitzer organ and is played from a console installed in the orchestra, and when required for solo work can be elevated to stage level by a lift. The proscenium opening is 43 ft. wide, and is provided with a fire curtain and sprinkler. The stage is very large and well equipped for variety entertainment as well as pictures. There are two picture screens, both of which can be raised by counterweighted gear to the grid, thus allowing the stage to be set in a variety of ways with both drapery sets and scenery. Three coloured lighting effects are provided, thus allowing of a large variety of colour changes. On the prompt side of the stage are several large dressing-rooms, band rooms, etc.

The chief lighting of the hall is by means of nine large electroliers suspended from the main ceiling. There are also six large domed recesses in the side walls of the cinema for lighting effects of a kind never before introduced in a cinema in England. These will admit of a variety of colour effects through set pieces incorporating waterfall and fountain effects, which can be viewed from all parts of the house. The cinema contains a commodious tearoom, flanked by lounges, which are approached from the balcony level. The projection is from a large, well-ventilated room, nearly 60 ft. long, containing four projectors and two limes. The whole building is heated and ventilated by means of a large air-conditioning plant—probably the largest ever installed in such a building in England. The air is washed and warmed and propelled by a 12-ft. diameter fan through an 8-ft. diameter duct in the main roof, where it branches off to the various ornamental grilles in the main and balcony ceilings. Here the air enters the theatre, the vitiated air is drawn out through the risers behind the seats in the balcony and through the gangway gratings in the auditorium floor into the voids below and finally blown out from small chambers on the roof of the side promenades. It is estimated that fifty million cubic ft. of air is introduced into the building each day when the house is open to the public. The cinema is designed on the English Eighteenth Century style. The walls of the auditorium are painted in warm tones of a neutral colour capable of receiving the various colour changes from the lighting effects. The general furnishings are blue and gold.

Mr. George Coles, F.R.I.B.A., is the architect, and Messrs. Thomas Edge the general contractors. Among the principal subcontractors are :—Automaticket, Ltd., ticket machines; Anselm, Odling and Sons, Ltd., marble work; Acme Flooring Co., Ltd., bagac strip flooring and block flooring; Association for Promoting the General Welfare of the Blind, mats; Frank Brockless, Ltd., projectors; British Vacuum Cleaner Co., vacuum cleaning plant; Berkeley Electrical Engineering Co., Ltd., electrical installation; Frank Burkitt, stage equipment; H. N. Barnes, Ltd., bronze letters and bronze metal frames; Carrier Engineering Co., Ltd., heating plant; Carter and Co., tiling, etc.; Gas, Light and Coke Co., cooking apparatus; J. W. Gray and Son, lightning conductors; Haywards, Ltd., metal windows, sashes, collapsible gates; Hathern Station Brick and Terra Cotta Co., terra cotta work; W. James and Co., Ltd., leaded lights and glazing; Knight and Co., gearing, tableau curtain; Leyland and Birmingham Rubber Co., rubber flooring, carpets; Lazarus and Son, Ltd., seating, carpets; Coules and Son, skylights, escape ladders, etc.; Leolynn, Hart, Ltd., draperies, settings, etc.; Moray Engineering Co. (London), Ltd., electroliers, barrier rails, handrailing, etc.; Piggott Bros. and Co., Ltd., flags; J. R. Pearson, Ltd., grilles to pay office, balcony railing, bronze handrailing, etc.; Promarble, Ltd., imitation marble work; Rubery, Owen and Co., steelwork; Rust's Vitreous Mosaic Tile Co., vitreous mosaic; Young and Marten, Ltd., sanitary goods; Samuel Wright and Co., solid and fibrous plastering; and Wurlitzer Organ Co., Wurlitzer organ.

National Provincial Bank, Hendon.

We illustrate one of the many excellent branch offices of the National Provincial Bank —that at Hendon. It has fine scale and is of dignified architectural treatment, and well illustrates the high standard of design that bank architecture has reached within recent years.

Mr. F. C. R. Palmer, F.R.I.B.A., F.S.I., and Mr. W. F. C. Holden, F.R.I.B.A., are architect and assistant architect to the bank respectively.

The general contractors were Messrs. F. Troy and Co., Ltd., of Finchley-road, N.W., and the following were sub-contractors :—The Patent Victoria Stone Co., Ltd., stone stairs; B.R.C. Co., reinforcement of floors and basement walls; Italian Sculptured Marble Co., marble paving; G. W. Riddle, curtains; Roberts, Adlard and Co., facing bricks and roof tiling; Dorman Long and Co., steelwork; G. and A. Brown, stone carving and fibrous plaster; Geo. Wragge, Ltd., lantern lights; Van Straaten and Rusts, Vitreous Mosaic and Tile Co., wall tiling; Bath and Portland Stone Firms, stone; Deane and Beal, Ltd., heating and hot water work.

Shop and Flats, Church-street, Kensington.

This building has been erected on a site adjoining the new building belonging to the Gas Light and Coke Company. The flats are grouped round a quadrangle, in the middle of which is to be laid out an ornamental garden. The entrances to the flats are direct from the quadrangle, which in turn is entered through a wide archway, which affords a pleasant view from the street of the buildings surrounding the courtyard. On either side of the archway, on the street frontage in Church-street, up-to-date shops have been planned. The building has been constructed of red and purple facing bricks with stone facings, a red tile roof, and an attempt has been made to create a building possessing some of the characteristics and charm of the Tudor period. Features have been made of the chimneys.

The general contractors are the Canonbury Construction Co., Ltd., and following is a list of the sub-contractors :—Smith, Walker, Ltd., structural steel; Ames & Finnis, red facing bricks; Leverstock and Acorn Brick Co., ornamental chimneys; Empire Stone Co., patent stone; Wiggins & Co., roofing tiles; Crittalls, metal casements; Dennis & James, electric lighting; Canonbury Construction Co., Ltd., shop-fronts.

Messrs. Yates, Cook & Darbyshire are the architects.

New Electricity Showrooms, Hoxton-street, Shoreditch.

This new building is shortly to be erected by the Metropolitan Borough of Shoreditch as their new electricity showrooms, offices, etc. This building was the subject of a limited competition, and, among six other firms of architects, Messrs. Yates, Cook & Darbyshire were invited to submit a scheme, and this was chosen, and it is hoped that a commencement of the building operations will be made very shortly. It is proposed to construct the building of red facing bricks and stone, and the main entrance and show windows will be of bronze. Owing to the nature of the premises, it is proposed to illuminate the glass dome at night as a publicity medium. Practically the whole of the ground floor is given up to showroom accommodation and stores at the rear, and the first and second floors provide accommodation for the clerical staff. The basement consists of another large showroom, stores and strong rooms. No tenders have yet been obtained for any of the work.

THE TOWN HALL AND MUNICIPAL BUILDINGS AT WIMBLEDON.

We think it will be admitted that the winning design, by Messrs. Bradshaw Gass & Hope, of Bolton, is a wise choice, both as regards its quality of plan and elevation. The allocation of the council chamber and various offices appears to be good, and regard has been had to planning the whole scheme to the axial lines of the council buildings and the assembly hall. Access to the various parts is direct and convenient. The exterior treatment is very much after the style of a French Renaissance hôtel de ville. It is agreeably proportioned and well balanced.

In the design of Messrs. Bradshaw Gass & Hope, FF.R.I.B.A., of Bolton, the municipal buildings form a self-contained block, with the main entrance in the centre of the Broadway front, and administrative entrances from Broadway and the Queen's-road. The accommodation required in each department is provided in well-lighted rooms, grouped together, and of the requisite areas. They are arranged in suitable positions for the work of the various departments of the Corporation, and the convenience of the public, and there is inter-communication throughout. Central, and at the head of the grand staircase on the first floor, is at the council chamber, with its accessory rooms forming a council suite, conveniently arranged not only for the work of the council, but for receptions and other municipal functions, and the connection with the assembly hall, on mezzanine floor level, enables them to be used together when required. There is separate access to the public gallery of the council chamber.

The public assembly hall can be used quite independently, or with the municipal buildings, and is placed so as to be away from any interference from street noises. The ample and convenient entrances and exits into the open semi-circular roadway gives good car approach, interference is avoided with the main stream of outside traffic in the Broadway and Queen's-road, and the risk of accidents is minimised. There are back entrances and safety exits into the fire-station yard.

The architectural character is simple in treatment, with a view of making an impressive and dignified group of civic buildings.

The design which takes the second premium is by Messrs. D. H. McMorran and A. Bailey. It has a well-arranged plan. The third placed design is by Messrs. S. Cooke and E. D. Lyon.

Amongst the large number of designs exhibited there are several of distinct merit, such as Nos. 100, 102, 80, 92, 74, and 71. No. 111 has admirable elevational treatment. In No. 100 we can note the influence of the late E. A. Rickards in the clever drawing of detail. An ingenious and attractive plan is No. 74. In No. 63 we have a disposition of the council chamber with its dome linking up the two buildings with a dominating note.

[The design is illustrated on one of our inset plates, and the lay-out plans are given on page 100.]

"The House Beautiful."

With the new year appears the first number of *La Casa Bella* ("The House Beautiful"), a monthly review, published in Milan, and dedicated to the arts and industries connected with the adornment and furnishing of the home. "The House Beautiful" is under the editorship of the Hon. Guido Marangoni, who for years has been the director and guiding spirit of the Monza exhibitions of decorative arts. He is now retiring from this directorship, though remaining on the council of the Monza exhibitions in order to devote his energies to the editing of *La Casa Bella*, whose first number promises very well indeed, both in text and illustrations. The review seeks to interest the public without Italy, and especially the English public; and an article on "The English Cottage" by Mr. Selwyn Brinton, M.A., F.R.S.A., is promised for one of the following numbers of the spring or early summer.

GENERAL NEWS

Preservation of Stanmore Village.

We learn that to preserve the old-world character of the village, the Stanmore Village Preservation Society has been established.

Mr. Henry Lovegrove's Estate.

Mr. Henry Lovegrove, of Foxgrove-road, Beckenham, a prominent Freemason, for some years district surveyor for South and South-West Islington, and Shoreditch (net personalty £4,584), left £10,332.

A Statue of Lord Curzon.

The commission for the memorial statue to the late Marquess Curzon has been given to Sir Bertram Mackennal. The intention is to erect a full-length statue of Lord Curzon in Carlton House-terrace, where he so long resided, and also a plaque in Westminster Abbey.

Mr. E. L. Morgan, A.M.Inst.C.E.

The death has occurred at Bolton of Mr. Edward Llewwrg Morgan, A.M.I.C.E., Borough Engineer and Surveyor for the County Borough of Bolton for 27 years, aged 51 years.

Mr. Leon Gaster.

We regret to record the death of Mr. Leon Gaster, at his residence at Sydenham Hill, on Saturday last, at the age of 55 years. Mr. Gaster was born in Bucharest, and came to this country a quarter of a century ago. He built up an extensive practice as an illuminating engineer and technical journalist, and was hon. secretary of the Illuminating Engineers' Society and proprietor and editor of *The Illuminating Engineer*.

The Flood at the Tate Gallery.

Though it is too early as yet to estimate quite accurately the damage done by the disastrous flood of January 7, the public may be relieved to hear that the bulk of the collections have escaped with surprisingly little apparent injury. The water-colours and chalk drawings by Turner, for example, have dried out with little or no loss of brilliancy, and it is hoped that the thousands of slight memoranda in pencil will not be materially affected. The need for rapid salvage has necessarily somewhat disturbed their chronological arrangement, but Mr. A. J. Finberg, who made the well-known Turner Inventory, is kindly collaborating with Mr. Hind in putting them back into order. The drawings by Rowlandson, Alfred Stevens and by modern masters seem to have suffered but little. Of the oil paintings, it would be premature to speak. Until they have thoroughly dried it is impossible to estimate what repairs may be required. But only a few paintings, and those not generally of high importance, show signs of damage which may prove irreparable. Mr. Whistler's paintings in the refreshment room appear to have resisted the flood, which destroyed the furniture and crockery there.

Exhibition of Garden Design.

The Council of the Royal Horticultural Society are organising an International Exhibition of Garden Design and a Conference of Garden Planning. The Royal Institute of British Architects and the Royal Society of British Sculptors are acting in co-operation, and have appointed representatives on the general committee of the exhibition and conference. The exhibition will be divided into four sections, as follows :—(1) "Retrospective Historical Section up to 1850"; (2) "Garden Planning for Town and Country"; (3) "Sculpture for Gardens and its Setting"; and (4) "Public Parks and Gardens." The exhibition will be one of selected plans, designs, models, and garden sculpture. The Council asks all gardening designers, and persons interested in garden planning and who may wish to exhibit or take part in the conference, to communicate with the secretary of the Royal Horticultural Society, Vincent-square, S.W.1. The exhibition and conference will be held in the Society's new hall from October 17 to October 24.

London Life Association Building, King William Street, E.C.: Detail of Entrance.

MR. W. CURTIS GREEN, A.R.A., F.R.I.B.A., Architect. (*See inset plate.*)

COMPETITION NEWS

Narrow-street, Peterborough.

The date for sending in designs in this competition has been altered to February 29, extending the period by a month.

Whitby U.D.C. Lay-out Competition.

The following notice has been issued by the R.I.B.A. :—Members of the Royal Institute of British Architects must not take part in the above competition, because the conditions are not in accordance with the published Regulations of the Royal Institute for Architectural Competitions.

Wallace and Bruce Memorial, Edinburgh.

The competition for this memorial, which is to be erected at the gates of Edinburgh Castle, has been won by Mr. Thomas J. Clapperton, of London, in collaboration with Sir Robert Lorimer, F.R.I.B.A., and Mr. Alex. Carrick, A.R.S.A., in collaboration with Messrs. Reid and Forbes, architects.

Town Hall and Municipal Buildings, Wimbledon.

The assessor in this competition, Mr. H. V. Ashley, F.R.I.B.A., has made his awards as follows :—

1st (£200): Messrs. Bradshaw Gass & Hope, FF.R.I.B.A.

2nd (£150): Mr. D. H. McMorran & A. Bailey.

3rd (£75): Messrs. S. Cooke & E. D. Lyon.

Over one hundred designs were submitted, and they are now on view at the King's Club, Merton-road, Wimbledon. We illustrate the winning design this week.

R.S.A. Competition of Industrial Designs, 1928.

Particulars of the Fifth Annual Competition of Industrial Designs, to be held at the Imperial Institute, South Kensington, London, S.W., in June, 1928, have now been issued, and can be obtained from the Secretary of the Royal Society of Arts, John Street, Adelphi, London, W.C.2. Intending competitors must apply to the Secretary of the Society between May 1 and May 12 for the necessary entry forms. In all, scholarships and prizes amounting to nearly £1,600 are offered in connection with the 1928 competition.

The Empire Marketing Board are offering in connection with this competition three prizes for a design in four colours for a shop window bill, with the lettering "Buy Empire Produce from Home and Overseas." The Royal Society of Arts offers a prize of £50 for designs for an entrance hall to a cinema, and a prize of £25 for a design for a silver cup for the Swiney prize for the best published work on jurisprudence. Four scholarships will also be awarded—the James Hyde scholarship of £100 for architectural decoration or textiles; one of £75 for designs for printed and woven dress goods and printed furnishings offered by the Tootal Broadhurst Lee Company; the Lewis Berger scholarship of £60, open to apprentices, students or craftsmen in the craft of painting and decorating; and the Art Congress studentship of £50 for practising craftsmen or designers, founded by the late Sir William Cuthbert Quilter. Among the competitions for which valuable prizes ranging from £5 to £52 10s. are also offered are as under :—In the architectural decoration section, for designs for a wrought-iron canopy for the entrance to a theatre, a decorative fountain, a petrol-filling station, and a bathroom. In the furniture section for dining, drawing and bedroom furniture, dining chairs, wireless cabinet, and panels for a baby carriage. In the pottery and glass section, for china cup, saucer, cream jug, bread and butter plate, and teapot; earthenware dinner plate and vegetable dish; service of glass, and a cut centrepiece with vases to match.

CORRESPONDENCE

While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

The Preservation of St. Paul's.

[We have received a letter from Mr. William Harvey answering "Inquisitive's" criticisms in detail, but in view of the importance of the matter and the unusual "make-up" of *The Builder* this week, we are deferring publication until next week in order to give his letter greater prominence.]

Shakespeare Memorial Theatre Competition.

SIR,—As an unsuccessful competitor may I call attention, without reflecting on Miss Scott's fine design, to the waiving by the assessors of the definite conditions for competitors, which, being followed, put the scheme completely out of the running.

It was a definite condition that the floor of the parterre should not be more than 3 ft. below the stage level. The winning design, probably correctly, assumes that in execution the normal 4 ft. will be reverted to. As shown, with only 3 ft. below the stage, only those in the front rows of the stalls would be able to see the performers' feet at the proscenium line, or below the knees when the Elizabethan stage is in use.

It was stated that at least six classes of seats by price, etc., were required. The winning design allows for three divisions of the house; and each division implies separate entrances and accommodation. Complying with these two requirements complicated the whole scheme, ruined the chances of the competitor, and lost to the promoters a practicable design.

A prayer to competition assessors!

Please do not accept and pass on to competitors conditions that are not absolutely essential, and that you are not prepared to enforce in the result!

LIONEL BARRETT.

The Death-Watch Beetle.

SIR,—Having had my attention called to the correspondence in your columns relating to the death-watch beetle, I should like to offer a few remarks in the hope that they may help to clear up one or two doubtful points. The question has arisen as to whether pinewood, and especially pitch-pine, would be free from attack by the death-watch beetle. I have myself seen only one piece of pinewood that had been attacked by it; but there were special circumstances in that particular instance which would, I think, serve to account for the attack. It was a piece of old Scotch pine from an old city church, where, as I understand, this wood had been placed in contact with the old oak, which itself was much damaged by the beetle.

Under stress of circumstances, wood-boring beetles, like human beings, will do extraordinary things, which under normal conditions they would never attempt. My own belief is that a timber roof consisting entirely of pitch-pine would be quite free from any danger of attack by the death-watch beetle (*Xestobium*). But if it is true, as stated both by Sir Frank Baines and Mr. Herbert Kenchington, that ordinary deal is subject to serious attack by it, my belief would be greatly shaken. I should like, however, to be assured by those gentlemen that in the cases adduced by them there has been no mistake in the identification of the beetle concerned.

In the course of my experience I have never seen, nor even heard of, a single case in which ordinary deal had shown any sign of attack by *Xestobium*, though I have often seen ordinary deal that had been badly damaged by the common furniture beetle (*Anobium punctatum*), and not only the sap-wood, which they certainly prefer, but the heart-wood as well.

As the author of the little pamphlet on "Furniture Beetles" to which Mr. Max Clarke has referred, I hope it will not be thought from anything I have said there that sap-wood only is subject to attack by either the death-watch beetle or the common furniture beetle. That is to a great extent true of the Lyctidæ (powder-post beetles), of which it is not here a question, but even in their case the heart-wood is sometimes, though not seriously, damaged by the beetles. But to say that the heart-wood is not subject to attack by the other two beetles would be quite contrary to common experience. It is, however, true to say that they prefer the sap-wood, and that the inclusion of the sap-wood in timber used in building construction or in the manufacture of furniture makes it more liable to attack by those beetles. The sap-wood would in all probability be the first part attacked, but the attack would not end there. If it did, we should hear less about the vast amount of damage done by the beetles. Builders are, for the most part, honest and intelligent men, and know very well the dangers that arise both from dry-rot and the beetles when sap-wood is used to any great extent. They cannot all, however, distinguish with certainty the work of *Anobium punctatum* from that of *Xestobium tessellatum*, although it is by no means a difficult matter. Mistakes, therefore, are likely to arise; the more so as the name death-watch beetle has frequently in the past been applied to the common furniture beetle among others, while the true death-watch beetle was at one time generally known by the name of *Anobium tessellatum*, and before the days of Queen Anne had been given the name of *Scarabæus domesticus*—a fact which seems to show that in olden days it was found much more commonly in houses than it is at the present day.

C. J. GAHAN.

The Mount, Aylsham, Norfolk.

Samuel Pepys and Architecture.

SIR,—Few people realise that this versatile Diarist and Treasurer to the King's Navy was an ardent student of architecture. He was constantly prowling round the shipyard at Deptford and worrying shipwright Pett as to the arts, crafts, and mysteries of shipbuilding, a trade allied in those days (1660) to ordinary building. Also Samuel was fond of associating with the most brilliant of the architects of his day; and there were many. On one of his visits to a building in course of erection he states in his Diary that "the workmen were prettily civil to me by touching their forelocks and I was mightily pleased"; also he states that "Rendall the house carpenter at Deptford hath sent me a fine blackbird which whistles pleasantly"; and once, Pepys was accused of measuring the King's timber up wrongfully, an aspersion of which he eventually cleared himself. Despite his varied career he was undoubtedly a lover of the Arts.

CHARLES MATTINGLY.

19, Museum Buildings, London, E.2.

The Defence of the Quantity Surveyor.

SIR,—I am quite content to leave this correspondence in the hands of your readers as it stands, with one additional remark, namely, that the methods of a profession cannot be deduced from the advertisement of an individual.

ALAN W. DAVSON.

Town Planning at Great Stanmore.

In view of the strong local opposition to the zoning of the frontage of the Pynnacles Estate, at Great Stanmore, Middlesex, as a shopping area, the Hendon Rural District Council on Thursday decided to dezone the area, so that it should be used for residential purposes.

THE R.I.B.A. STUDENTS' COMPETITIONS

A large show of drawings at the Institute Galleries indicates a good amount of activity amongst students, and some encouraging quality in the work. The subjects set—a covered market, a crematorium, a departmental store, and a seaside hotel—were fairly attractive and reasonably easy to attempt.

The Soane Medallion subject is a covered market, and the winning design, "Nerod," is by Mr. Leonard W. T. White, A.R.I.B.A. It shows a broad and simple mass of building of good outline, produced by the receding square faces of walling crowned by a great segmental roof: it realises a good result by its simplicity and nice proportion. It has no defined architectural style or traditional featuring.

"Nine" and "Peep" and "Mex" have good elevational treatment: the latter is particularly nice in its feeling and proportion. A striking and clever design is "Vendor": the author of this design should make good. A design of some considerable excellence is that by "Salt." "Niente" and "Arcade" also merit commendation.

There were as many as 113 entries for the Tite, and 20 of those selected for exhibition make an interesting show. The winning design, by Mr. Patrick McNeil, A.R.I.B.A., "Temporis," is a quite admirable essay in Renaissance, and the octagonal plan of the chapel is built up in an impressive and effective way with six deeply recessed columbaria. The drawings are admirably done and the detailed treatment excellent. One of the best of the designs is "Capitol," which would make a pleasing group of buildings; it is treated with refinement and has a nice sense of proportion. "Rima," "Tavi," "Spero," "Ague," "Omega" and "Titian" are all designs of some decided quality. The Tite prize preliminary competition elicited some clever studies.

For the Alfred Bossom studentship, gold medal and £250, the subject was a seaside hotel. The winning design is by Mr. Patrick Cutbush, A.R.I.B.A., "Me." This design has a well-laid-out plan with dining-room, tea lounge and restaurant occupying the sea front. The ballroom is planned for separate use and entrance. Corridors are always a difficulty, but the designer has possibly made the best of them. The elevational treatment is somewhat too solid and simple for the subject, but the solids and voids are well arranged. The elevational treatment of "Admiral" is very good and really has a more pleasant result from an architectural point of view.

The Grissell prize for a departmental stores goes to Mr. Alfred G. Geeson, A.R.I.B.A., "Brovic," for a design which is carefully worked out. It is an island site, and the show windows and entrances are effectively planned. The elevational treatment has also some merit. On the whole, another competitor, "Niloc," ran it pretty closely.

The Owen Jones prize was not awarded, but some very decided excellence of colour is shown by the competitors, and one should think if they made a little bit bigger fight another day they ought to score.

For the measured drawings prize the winner is Mr. F. W. C. Adkins. "Tripoli" has done some excellent work in his illustrations of the Banqueting House at Whitehall, which he had great advantages to study owing to the work being done from scaffolding on the upper part for the Office of Works operations recently. He has good drawings of St. Martins-in-the-Fields and Burnham Market. Some good drawings are shown by "Tod," of Stowe House, Bucks. The measured drawings are not, as a whole, so good as they might have been.

Plymouth Hospital Extension.

The Plymouth County Borough has instructed the Borough Surveyor to prepare detailed plans and specifications in connection with the extension of the Hospital by means of permanent buildings.

PRIZES AND STUDENTSHIPS.

THE PRESIDENT, Mr. Walter Tapper, A.R.A., occupied the chair at Monday evening's meeting of the R.I.B.A., when, following the award of prizes and studentships (given hereunder), Mr. L. Sylvester Sullivan, F.R.I.B.A., gave a criticism of the work submitted. Referring to the Tite Prize, Mr. Sullivan, in a word generally to all the competitors on the relation of height to plan and section, said in many instances the heights were overdone from a desire to force scale. Balance was got from a due consideration of proportion and a just relation of one thing to another only; the use of force destroyed scale. Many of those chapels, if sketched in perspective internally by the students, he felt sure, would have been modified.

Referring to the Essay Silver Medal, the speaker said it seemed desirable to impress on all competitors the need for simplicity in writing and the use of short words in place of long ones where short ones would convey the writer's meaning. It would be an excellent exercise for competitors to take a short course of reading in one or other of the masters of essay writing, where they should analyse the easy style employed and inform themselves even in the construction of the simple sentences used. Let them take, say, any one of Stevenson's small books of Essays or "Travels with a Donkey in the Cevennes," and try to write as directly; read over what had been written, and ruthlessly cross out almost every adjective, however loved. It would be astonishing how much improved the general effect was and how much stronger the appeal of the adjective became when it rarely occurred, and finally, how much more clearly the meaning shone out. At least one essay this year had been ruined by spouting fountains of foliated and cusped words, which contorted the tongue and made the reader breathless with the effort of vocal expression.

Having given a detailed criticism of the Grissell designs, the speaker, referring to the Measured Drawings Prize, said this was a most satisfactory and encouraging competition and of quite a high standard all round. It would be useful to see the candidates, who were obviously interested in Gothic work, have a try for the Arthur Cates prize for the study of vaulting and stability of edifices.

The Owen Jones Studentship had been a rather unsatisfactory competition from the point of view that where a competitor had not done badly with the design of the building he had broken down on the colour and ornament, or vice versa, or had broken down in both. The jury had felt compelled to withhold the award.

The winner of the R.I.B.A. (Alfred Bossom) Travelling Studentship had made the best use of the site, so that the maximum number of rooms had a seaward view, and the arrangement of the public rooms was such that the non-residential business of the hotel need not interfere unduly with the residents. The kitchen and services were well disposed near the grill room, with lifts to the service rooms of the restaurant, tea room and dining room. These latter rooms were all on the sea front, with a terrace. The elevations were dull and lacked interest. The draughtsmanship was adequate, but the elevations were not helped by the heavy colour.

The Soane Medallion was, in some respects, a disappointing competition, more especially as there was no really outstanding design, and on the whole the various schemes might be said to cancel out each other—nearly but not quite. The remarks made in the Tite Prize competition regarding scale and height applied equally to this one, and where, for instance, masses big in themselves were employed, they were often made bigger for the purpose of forcing effect to such a degree as to defeat the competitor's object and become ludicrous. The mere human man, even piled high with baskets as he sometimes was, in these vast halls would feel of puny proportions. It must be remembered that buildings were made for humans not humans for buildings, so that the scale must always be a human one too. The earliest and most elementary thing a student was taught to do, surely, was to read and understand programmes. The very title of this one was "A Covered Market"—why did some disregard that altogether? What chance did they imagine they had of winning? People who won public competitions did not, as a rule, do so by such disregard of conditions.

Discussion.

Mr. H. M. Fletcher, F.R.I.B.A., proposing a vote of thanks, said Mr. Sullivan had said something about almost every design, and he (the speaker) felt that the student would rather have his design "slated" than that it should go unnoticed. The jury, he believed, were very well satisfied with the standard of design this year. The designs were mostly by students in the schools. The pupilage system at its highest produced great results, and those who had the privilege of being articled to great architects came in contact with something the schools could not give, but that something was confined to three or four men in a generation. The schools educated hundreds of students at a time, and one of the most interesting results of the school system was the winning design in the Shakespeare Memorial Theatre competition. Those who studied the design would see how well it fitted in with the lines of the river. Miss Scott's success was significant of several things. One was that she had chosen with extraordinary prudence the family in which she had been born; another that her success marked the definite entry of women into the architectural ranks; and a third was that she belonged to Shakespeare's own race. They were delighted that it had fallen to an Englishwoman to build this Memorial Theatre on the central spot of English literary genius.

Mr. T. P. Bennett, F.R.I.B.A., seconding the motion, in the course of some valuable advice to students, warned the winners that brilliance would begin to go the moment they relaxed effort. Following success, there was a danger of mental laziness. For those who had tried and failed there was only discouragement, and it required a great effort to try again. The will to persevere must never be allowed to flag. The non-competitors he cautioned against the easy attitude of critical superiority.

The President then put the vote to the meeting, which was carried with enthusiasm, and Mr. Sylvester Sullivan briefly replied.

Prizes and Studentships Awards.

The annual award of the Prizes and Studentships of the R.I.B.A. was announced at Monday evening's meeting as follows :—

THE TITE PRIZE AND £50 FOR DESIGN (for the Study of Italian Architecture).

113 candidates took part in the Preliminary Competition and 20 were admitted to the Final Competition. The subject set for this year was "A Crematorium." The prize was awarded to Mr. Patrick McNeil, A.R.I.B.A., Oakbank, Dollar, Clackmannanshire.

THE SOANE MEDALLION AND £150 FOR DESIGN.

25 candidates took part in the Preliminary Competition, and of these eight were admitted to the Final Competition. In addition seven candidates were admitted direct to the Final Competition. The subject set for this year was "A Covered Market." The Medallion was awarded to :—

Mr. Leonard W. T. White, A.R.I.B.A., 18, Alyth Gardens, Golders Green, N.W.11 (London University Atelier).

Certificates of Hon. Mention were awarded to :—

Mr. Geo. A. Goldstraw, 16, Cholmondeley-road, Pendleton, Salford, Manchester.

Mr. James Barrington Wylde, A.R.I.B.A., 1, Grove-place, Birchgrove, Whitchurch, Cardiff.

Mr. J. T. Lloyd, 9, South Side, Stamford Brook, W. 6.

Exemption from submitting Testimonies of Study for the Final Examination granted to :—

Mr. H. G. C. Spencely, Ashley House, Box, Wilts.

Mr. W. Bernard Oldacre, A.R.I.B.A., 130, Princes-road, Hartshill, Stoke-on-Trent.

Mr. W. Percik, A.R.I.B.A., 27, Dyne-road, Brondesbury, N.W. 6.

Mr. Raymond Erith, A.R.I.B.A., 46, Albion-road, Sutton, Surrey.

Mr. S. G. Chaplin, 51, Blandford-street, Baker-street, W.1.

THE GRISSELL GOLD MEDAL AND £50. (for the encouragement of the Study of Construction).

Three designs were submitted. The subject set for this year was "Shop Premises for a Departmental Stores." The prize was awarded to :—

Mr. Alfred G. Geeson, A.R.I.B.A., Lincoln Chambers, Lincoln-street, Nottingham (and School of Architecture, Leicester College of Arts).

THE OWEN JONES TRAVELLING STUDENTSHIP AND £100.

A Certificate and £100 for Ornament and Coloured Decoration.

Four candidates took part in the Preliminary Competition, all of whom were admitted to the Final Competition. (Not awarded.)

THE ROYAL INSTITUTE SILVER MEDAL FOR MEASURED DRAWINGS AND £75.

Six sets of drawings were submitted. Awarded to :—

Mr. F. W. C. Adkins, "Delamere," Elmwood-avenue, Harrow, Middlesex (and Polytechnic School of Architecture).

THE ROYAL INSTITUTE SILVER MEDAL AND £50 FOR AN ESSAY.

Eight essays were submitted. Awarded to :—

Mr. Vernon Constable, A.R.I.B.A., Old Town House, Dundee (late of the Glasgow and West of Scotland Technical College).

THE R.I.B.A. (ALFRED BOSSOM) TRAVELLING STUDENTSHIP, GOLD MEDAL AND £250.

A Gold Medal and £250 for the study of Commercial Architecture in America.

Awarded to Mr. Patrick Cutbush, A.R.I.B.A., 107, Jermyn-street, S.W.1 (of the Architectural Association School of Architecture).

Silver Medals awarded to :—

Mr. Patrick Cutbush, A.R.I.B.A. (as above).

Mr. John R. Moore, A.R.I.B.A., 13, Acland-road, Willesden Green, N.W.2.

Mr. R. Nelson Guy, A.R.I.B.A., Dalkeith, 128, Crescent-road, South Woodford, Essex.

Mr. Charles Thomas Bloodworth, B.Arch. Liverpool, A.R.I.B.A., 138, Derby-lane, Stoneycroft, Liverpool.

THE ASHPITEL PRIZE, 1927.

Awarded to Mr. J. G. Laskie, A.R.I.B.A., Roselynn, Bearsden, near Glasgow.

THE R.I.B.A. SILVER MEDAL FOR SCHOOLS OF ARCHITECTURE RECOGNISED FOR EXEMPTION FROM THE FINAL EXAMINATION.

Awarded to Mr. W. R. Brinton, Architectural Association School of Architecture.

THE R.I.B.A. BRONZE MEDAL AND £5 IN BOOKS FOR SCHOOLS OF ARCHITECTURE RECOGNISED FOR EXEMPTION FROM THE INTERMEDIATE EXAMINATION.

Awarded to Mr. Allan Johnson, Leeds School of Architecture.

The Competition Drawings will be on exhibition in the R.I.B.A. Galleries, 9, Conduit-street, W.1, until January 23, between the hours of 10 a.m. and 8 p.m., Saturdays 10 a.m. and 5 p.m. (Sundays excluded).

THE ARTHUR CATES PRIZE. A SUM OF £50.

No applications were received for this prize.

MINUTES.

We take the following notes from the minutes of the Council meeting of December 5, 1927 :—

London Squares.—On the recommendation of the Town-Planning and Housing Committee it was agreed to approach the Royal Commission on London Squares with a request that the R.I.B.A. should be allowed to submit evidence to them.

St. Olave's Church, Tooley-street, Southwark.—The Town-Planning and Housing Committees were empowered to act on behalf of the Institute in the matter of the threatened demolition of the tower of St. Olave's Church, Tooley-street.

Acoustics Research.—On the recommendation of the Science Standing Committee, the following resolution was approved and forwarded to the Department of Scientific and Industrial Research :—

> "The Science Standing Committee of the R.I.B.A. understand that the Department of Scientific and Industrial Research are considering further acoustic experiments following the programme of research work proposed by the R.I.B.A. in 1917. They wish to express their opinion that such further experiments are most desirable, especially experiments upon the new wall, ceiling, and partition materials placed on the market in the last few years. The data from such experiments would be of immediate use to architects."

British Architects' Conferences, 1928 and 1929.—On the recommendation of the Allied Societies' Conference it was decided that the British Architects' Conferences in 1928 and 1929 should be held at Bath and York respectively.

R.I.B.A. Lectures on Architecture for Workers in the Building Trades.—The Board reported that they were making arrangements for a series of six lectures to be held during the Session.

Examination in Professional Practice for Students of Recognised Schools exempted from the R.I.B.A. Final Examination.—On the recommendation of the Board it was decided that students of Schools recognised for exemption from the R.I.B.A. Final Examination should be permitted to take the R.I.B.A. Examination in Professional Practice any time in the fifth year of their course or after, provided they complied with the regulation to the effect that they must come up for election as Associates R.I.B.A. within two years of completing their school course qualifying for exemption from the Final Examination.

The R.I.B.A. Maintenance Scholarships.—The Board reported the award of R.I.B.A. Maintenance Scholarships as follows :—

(i) The A.G.B.I. Maintenance Scholarship (£100) to J. F. D. Wylson, of Whitstable;

(ii) The R.I.B.A. Fourth and Fifth Year Maintenance Scholarship (£100) to C. J. Bartlett, Cardiff School of Architecture.

The Board reported that the following had been granted renewals of their R.I.B.A. Maintenance Scholarships for the year 1927-1928 :—

(i) B. I. Day, R.W.A. School of Architecture, Bristol (£100);

(ii) E. L. W. Davies, Bartlett School of Architecture, University of London (£100);

(iii) E. J. White, Bartlett School of Architecture, University of London (£100);

(iv) Herbert Jackson, Birmingham School of Architecture (£60);

(v) A. K. Brown, Armstrong College, Newcastle-upon-Tyne (£50).

R.I.B.A. Prizes and Studentships.

The R.I.B.A. (Archibald Dawnay) Scholarships.—The Board reported that the following awards had been made :—

(i) An R.I.B.A. (Archibald Dawnay) Scholarship of £75 for the year 1927-1928 to G. R. Beveridge, Architectural Association School of Architecture;

(ii) An R.I.B.A. (Archibald Dawnay) Scholarship of £50 for the year 1927-1928 to W. G. Plant, Liverpool University School of Architecture;

(iii) A second-year R.I.B.A. (Archibald Dawnay) Scholarship of £75 for the year 1927-1928 to Miss C. W. Preston, Architectural Association School of Architecture.

The R.I.B.A. (Henry Jarvis) Studentship at the Architectural Association School of Architecture.—The Board reported that the Studentship had been awarded to Mr. R. W. Lloyd.

The R.I.B.A. (Howard Colls) Travelling Studentship at the Architectural Association School of Architecture.—The Board reported that the Studentship had been awarded to Mr. A. G. Gibson.

The R.I.B.A. (Donaldson) Medal at the Bartlett School of Architecture, University of London.—The Board reported that Mr. A. C. Light had been awarded the Medal.

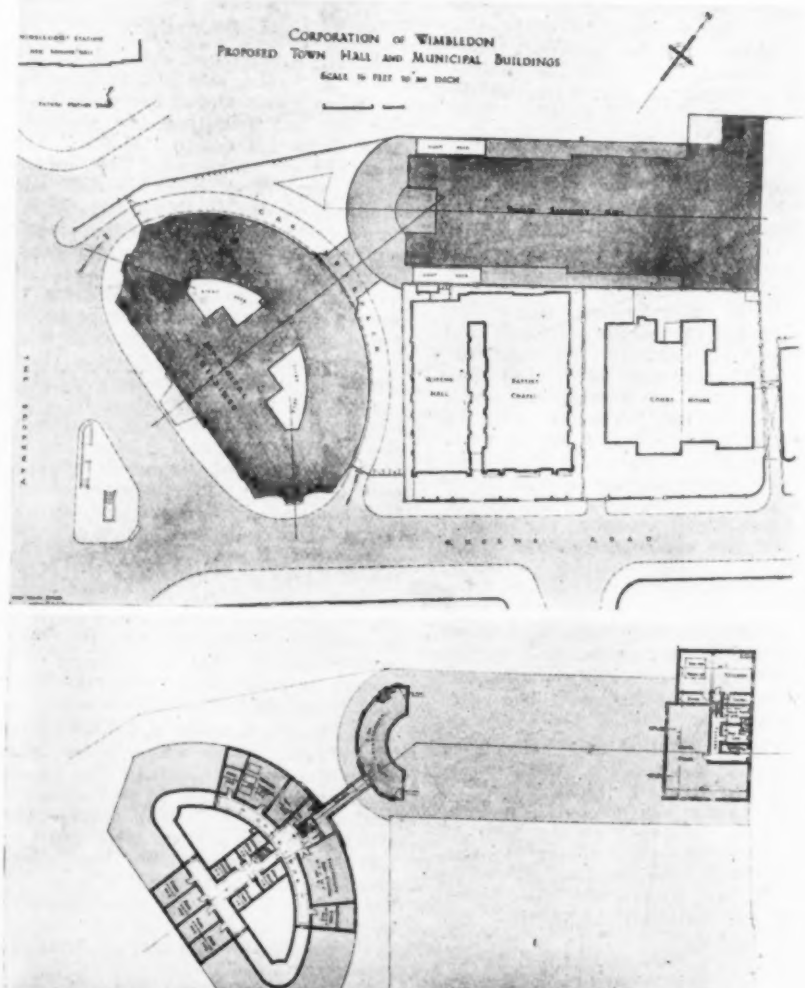
The Tite Prize.—The report of Mr. E. Cumine, Tite Prizeman, 1927, was approved.

The Godwin Bursary and Wimperis Bequest.—On the recommendation of the Board it was decided that in future this prize should be described as "The Godwin and Wimperis Bursary."

The Constitution of the Board of Architectural Education.—On the recommendation of the Board it was agreed to invite the National Society of Art Masters to nominate one representative to serve on the Board, the Association of Principals of Technical Institutions to nominate one representative, and the Association of Teachers in Technical Institutions to nominate one.

Centenary of the Incorporation of the Institution of Civil Engineers.—The President was appointed to represent the R.I.B.A. at the celebration of the Centenary of the Incorporation of the Institution of Civil Engineers by Royal Charter to be held in June, 1928.

Jubilee Celebration of the Institute of Chemistry.—The President was appointed to represent the R.I.B.A. at the celebration of the Jubilee of the Institute of Chemistry to be held on December 14 and 15.



Town Hall and Municipal Buildings Competition, Wimbledon : Winning Design.

MESSRS. BRADSHAW GASS & HOPE, FF.R.I.B.A., Architects.

ARCHITECTS AND DECORATORS

On the invitation of the Institute of British Decorators a number of architects attended a joint meeting of the Institute and the Royal Institute of British Architects at Painters' Hall, on Thursday last week, to debate the question "Are the Existing Relations between Architects and Decorators Satisfactory?" Mr. Godfrey Giles (President of the Institute of British Decorators), said the object of the meeting was principally to afford an opportunity for architects and decorators becoming known to one another, and to bring about a more cordial spirit of co-operation between them.

In opening the debate, Mr. GUY DAWBER, P.-P.R.I.B.A., said a discussion of that nature should serve a useful purpose and help to clear the air of a certain amount of feeling between architects and decorators that might exist at the present time. In olden times, he continued, the architect had sole control of his work, and even went so far as to choose his own craftsmen. Kent and the brothers Adam not only designed their own buildings, but all the decoration, even down to the table glass and cutlery. But that was now a thing of the past. An architect's duties were now so multifarious that it was quite impossible, for first of all the architect of to-day had to be a man of business. In the case of a London building the architect had to negotiate the site, arrange with regard to rights of light, adjoining owners, and many other matters before he could start his design at all. Then he had to see contractors, sub-contractors, and specialists, and arrange their work; he had to get plans approved by the local authority; he had to supervise the work and see it carried out to the satisfaction of his client; and he was the scapegoat for all the mistakes of every person connected with the building.

The decorator had none of those difficulties to contend with. The burden of the day was borne by the architect and did not trouble the decorator, who was simply called in by the architect or client to do certain work. Further, the decorator had his showrooms full of various "period" rooms, and a great many firms of decorators made a speciality of doing architectural work and advertised that they undertook alterations, additions, and all architectural work in any part of the country. The decorator was formerly employed by the architect, who had sole control; then things went smoothly, as the decorator helped the architect by supplying details the busy architect could not attend to. But now, he understood, some decorators would not work on buildings where an architect was employed. That was, he thought, a great mistake, because architects felt decorators could be of great help to them in their work. It was difficult sometimes for a busy architect to carry out and supervise all the decorations in a building. At the present time architects had a suspicion that decorators often went beyond their legitimate sphere, and ousted the architect. On that point architects felt very sorely, and if they could arrive at a basis by which that would be impossible it would put the relations between architects and decorators on a more friendly footing.

Another point the architects made against decorators was the fact that their showrooms were filled with replicas of old rooms and panelling, and the nearer the copy the more interesting they were supposed to be. He thought that was a great mistake, and did not help the encouragement of original design. They got in a rut, and there they remained. Where could one go in London and see examples of original furniture at a decorator's showrooms? Decorators had an enormous clientele, and they had the ear of the public; it was "up to" them to try to do something original and stop the mere copying of old things. In that direction architects were much ahead of decorators, for they were keeping abreast of the times. The architect of to-day had original thought and original ideas; he did not merely hark back to the copy of the past as decorators continued to do.

Mr. T. P. BENNETT, F.R.I.B.A., said the bedrock of the relations between the architect and decorator, as in other spheres, was whether they were doing their jobs so that the public got value for money. If an architect got a commission to design a building and handed the decoration over complete to a decorator, and the architect took a fee on the cost of the decoration, there was no doubt he would be taking a fee he had not earned. But personally he was of opinion that the architect should design his own decoration. In his opinion, decoration should start from the laying of the foundation-stone; otherwise the windows would be in the wrong places, and no amount of subsequent surface treatment would give a satisfactory result. If the decoration were designed by the architect, and the decorators' contribution were simply the supply of intimate knowledge of the forms and finishes and materials and of suitable artists to do the work, he could not see that the relations between architects and decorators could be anything but satisfactory. But if a decorator offered to build half a house or two-thirds of a chapel, without the slightest knowledge of construction, and managed to scramble through with the help of his foreman and by virtue of his offer to supply the complete job in price about double what it was worth, he could not imagine that the relations between the architect and decorator would be satisfactory. On the assumption that the architects' duties were becoming daily more complicated, he imagined that decorators suffered from the same difficulty. Nowadays there was increasingly more room for the specialist, whose knowledge of materials and crafts was of more and more importance in building work.

Mr. F. DAKIN (decorator) said decorators often had a grievance because they were often asked to send in tenders for work within six days or less, although with a little forethought on the part of the architect a much longer time could have been given for the preparation of the tenders. Some consideration in this respect, and also in regard to the time in which he was expected to execute the work, would be welcomed by the decorator. It was not merely a question of the preparation of prices and quantities, but should be, and often was, a case for collaboration between the architect and decorator in the preparation of the architect's drawings for submission to his client. Another point was that decorators were often expected to start work directly the plaster work was finished; it did not appear to be known by some architects that decorators had not entirely overcome the problems that difficulty presented. The difficulty was especially present in the case of double-sided surfaces on very thick new walls that had to be treated with paint or other waterproofing material. It would be all to the good if the decorator were consulted before the order for the plaster work was given out. Members of the Institute of British Decorators would welcome consultation with the architects on the scheme of decoration, so that the work could be better done owing to the experience of the decorator that would be placed at the disposal of the architect.

Mr. A. J. DAVIS, F.R.I.B.A., said he personally had never experienced any friction with decorators, and if it existed it must be due to the multifarious departments the modern architect had to control preventing him from specialising in them all. The architect had to call in engineers to help with construction, and decorators with decoration. In the olden days there was no dividing line between architecture and decoration, and there should not be one. Where did architecture end and decoration begin? Even if the architect could design his own decoration he could not carry it out, and the best schemes on paper were failures unless they were carried out by good workmen to interpret the architect's ideas. Architects had to employ the services of decorators whether they liked it or not. He also regretted that decorators filled their showrooms with copies of old furniture and panelling, and made no attempt to encourage design in a modern way. He thought the reason was that the clients did not want modern decoration, but they could not go on for ever repeating the beautiful old designs and the eternal reproductions were getting tiresome. The difficulty was that very few buyers of furniture desired modern ideas. It was therefore necessary to educate the public, and the decorators could do a great deal in that direction. Where he thought decorators made a mistake was in supplying clients with drawings for nothing in competition. Architects did not supply free drawings, but he had seen decorators competing against themselves and spending hundreds of pounds on perspectives and elaborate drawings when they all knew that only one of them could get the work and that all the remainder of the drawings were wasted. If decorators refused to supply free drawings it would be to the good of all concerned.

Mr. W. E. GREENWOOD (decorator) said there were different types of decorators, and it was rather important to know which type they were discussing: there were decorators who were purely mural decorators; there were decorators who did furniture and carpets, and there were builders who had a special decoration department. All good decorators had a sound knowledge of architecture, but he found very few architects specialised in decoration. Decoration could either be an ordinary commercial job or a specialist job, and they should try to draw a line between the two. On an ordinary job the decorator simply worked according to instructions, while in the other case he was in full charge of the whole of the work. When an architect asked specialist decorators to put themselves in competition with ordinary builders and decorators he was frequently disappointed, because the first-class decorator would not risk his reputation in that way. A frequent difficulty from the architect's point of view was that the client went direct to the decorator in whose showroom they could see just what he wanted. When the decorator's work was a specialist job they felt the architect should consult them rather than tell them what to do.

Mr. W. E. WATSON (architect) said that while the architect was supposed to be master of all the crafts, the decorator was complete master of his own, and that frequently gave rise to some antagonism because in artistic matters there was no tribunal to which one could go for a decision.

Mr. CECIL CAMPBELL (decorator) said the function of the decorator was to interpret the ideas of the architect to the best of his ability, and he should not try to force his own ideas upon the architect. The architect alone knew what the completed whole would be, and what he wished it to be like, but the decorator came in at the last minute and could not have studied the problem to the same extent as the architect. It should therefore be the function of the decorator to give the architect what he wanted. In his opinion it was not the specialist decorator who was ousting the architect, but the big stores with decorating departments.

Mr. GILBERT H. JENKINS, F.R.I.B.A., said when the architect and decorator were working towards the same end with complete understanding the relations between them were most cordial; sometimes an architect had forced upon him by a client a decorator of whom he had no knowledge and in whom he had no confidence, and then the trouble

commenced. On the question of the architect specifying particular brands of paint or enamel, it might be true that young architects were persuaded by salesmen to use certain brands, but the architect of experience knew that a good firm of decorators always used materials equally good. It should be realised that the decorators' men became accustomed to using particular materials, and that the same excellent results would not always be obtained if they were called upon to use different materials. He did not think the best work was done by getting tenders from three or four firms of decorators; a client never got five pounds' worth of work for four pounds—when he tried to do so he generally only got three pounds' worth. There was friction between architects and decorators at times because some decorators took on work other than decoration; some of the modern furniture makers, for instance, were undoubtedly doing more than decoration.

Mr. CHARLES HINDLEY (decorator) said it might be true that most of the contents of the decorators' showrooms was reproduction, but he remembered that when some years ago a few firms started to make new designs they found that architects did not want anything original. His associations with architects had led him to consider them as worthy gentlemen still rummaging amongst the skeletons of a dead past, and trying to find someone who could show something that looked old. As to the specification of special paints, he recalled an instance in which special paint was specified for a job he carried out. He used the paint as instructed, and the architect was much concerned because it did not dry out for about six weeks; if, however, he had been consulted he could have told the architect that that would have been the case, and could have told him how to treat the paint to dry out sooner.

Mr. E. J. SADGROVE, F.R.I.B.A., said it had been laid down that an architect should not specify the particular paint he wished to be used, but he presumed that applied to the better class of decorator only. But there were other classes of decorators, and he thought the architect was doing the right thing in many cases in specifying a particular paint or "as good." In reference to the previous speaker's statement that he had used paint as specified, knowing that it would not dry for six weeks, he would have something to say to any decorator who treated him in such a manner, for an architect was not a trained expert in paint, and he thought it the duty of anyone working for an architect to advise him in such matters.

After some brief remarks by the Chairman, the question was put to the meeting, and was carried in the affirmative by 32 votes to 13. Only about half of those present voted.

LEGAL QUESTIONS WE HAVE BEEN ASKED

By W. T. CRESWELL, Barrister-at-Law, L.R.I.B.A., Associate (late Fellow) Surveyors' Institution, etc.

When is a Tender Binding?

If a contractor supplies labour and materials for any building work without having previously given any tender for it, then he is only entitled to charge and receive a "fair and reasonable" price for such work. But where a contractor has sent in a tender which takes into account the initial costs which he must incur before commencing the proposed work, together with the cost of labour, materials and profit thereon, and his tender has been accepted, then a legal bond is created, and, whatever the work may finally cost him, he must complete it in accordance with the terms of the contract.

Tenders are usually obtained by invitation or in limited competition, or by advertisement for open competition. In either case, it is an invitation to treat, an offer to negotiate, an *offer to receive offers*; that is, a mere attempt to ascertain whether an offer can be obtained within a margin possibly preconceived. The employer, in making this invitation, incurs no liability; not even for any expense incurred by the contractor in preparing the tender.

Hence we see that before any binding contract between the employer and the contractor can be shown to exist, there must be, first, the tender, which is the offer; and secondly, the acceptance of that tender. The acceptance must be made within the time prescribed in the invitation, and, if no time is given, then it must be performed within a reasonable time. Such acceptance should be definitely communicated to the contractor giving the tender, though it is possible that the *conduct* of the acceptor may determine a contract, even though no formal acceptance has been made. For instance, if he permits the contractor to commence the work or to make definite arrangements for proceeding with it.

The Offer and Acceptance.

As showing what constitutes an offer, in Croshaw *v.* Pritchard & Renwick (1899), 16 T.L.R. 45, Pritchard wrote to Croshaw a letter in the following terms: "Estimate. Our estimate to carry out the sundry alterations to the above premises according to the drawings and specifications amounts to £1,230." It was held (1) that this was an offer to do the work for £1,230. (2) That there was no custom that a letter in such form was not to be treated as an offer, and if there was such a custom it was contrary to law. (3) Croshaw, having accepted the offer, there was a binding contract from which Pritchard could not withdraw subsequently. It has been held, similarly, that there was a binding contract when there was an *unconditional* acceptance of a tender which the contractors alleged to be only a *provisional* tender.

Documentary Evidence.

Now it is well known that it is possible to show that a contract exists, by the discovery or production of a number of documents passing between the parties, provided that these can be linked together and shown collectively to contain all the essentials of a contract. But when the Court is asked thus to find from various correspondence (and not from any one particular note or memorandum formally signed) that a contract exists, *the whole* of the correspondence, etc., which has passed between the parties must be taken into consideration, and every document be given its full meaning and weight legally.

In Hussey *v.* Horne-Payne (1879), 4 A.C. 311, it was held that though the first two letters of a correspondence seemed to constitute a complete contract, yet upon the whole of what had passed in letters and conversation no conclusive and complete contract had been established. However, if once a definite offer has been made out from correspondence, and there has been acceptance without any qualification, and it appears that all the letters of offer and acceptance contained the essentials of a contract, then all the terms agreed on between the parties in this contract, by whatever means they have been arrived at, cannot be set aside or modified by subsequent negotiation, except with the consent of the parties.

Result of Further Negotiations.

Further negotiations between the parties render void the contract already arrived at. Any modifications mutually agreed may constitute a new contract altogether.

A letter from one of the parties to the other, introducing additional terms after the acceptance of a tender, is not binding on either of the parties under the original contract.

In Leslie & Co. *v.* Commissioners of Works (1914), 78 J.P. 462, a firm of contractors tendered for the execution of certain work for the Commissioners of Works. The tender was accepted, and a contract in writing, to be signed and sealed, was prepared. Before the execution of this document, the contractors wrote to say that they were sending the contract executed by them "on the assumption that in the event of the Bill dealing with the workmen's insurance now before Parliament becoming law, the payments thereunder which will fall upon this company as employers will be recouped to the company under clause 15 of the contract." No reply was received to this letter, and the contract was executed by the Commissioners of Works themselves. It was held, that the Commissioners were not bound by the terms of the letter, nor estopped from relying upon the true construction of the sealed contract as originally worded.

Proving an Agreement.

Even when a collection of documents can be linked up or connected, still these may not provide the essentials of a binding agreement. As, for instance, where the contract is to deliver some particular article made in a particular way, and the documents relied upon do not sufficiently disclose what the bargain was intended to comprise or its terms. There must be a sufficient note, or memorandum in writing, and a description sufficiently clear that shall satisfy section 4 of the Statute of Frauds (now section 40 of the Law of Property Act, 1925), or section 4 of the Sale of Goods Act, 1893. These, in short, necessitate that all the essential elements of the contract must be expressed, and that contracts for sale of goods or any interests in land must be in writing. It follows that any variation of them must also be in writing.

Application of Statutes.

A chattel is something which is an entity, and an agreement for the sale of it, is an agreement for a sale of goods under the Sale of Goods Act, 1893.

The distinction between a contract for the sale of a chattel and one for work and labour, as in the case of a building, depends upon whether or not the expenditure of work and materials results in the production of a chattel, the property in which passes by an actual sale. When there is a contract to affix a chattel to land, or to another chattel, before the property passes, there is no contract of sale either of the chattel or of the separate materials. In Clarke *v.* Bulmer (1843), 11 M. & W. 243, there was a contract to build a steam engine, the engine being forwarded in parts and fixed piecemeal. It was held not to be one for the sale of goods because the engine was not to be delivered, nor was it delivered, as an engine in its complete state, so there was no sale of it as an entire chattel.

Building Works.

In building works, therefore, an oral agreement can be enforced as to the building. If, however, it involves also an interest in land, as in a building lease, it must be in writing, and no oral agreement is enforceable. Also, there must be evidence in writing of an agreement which is not to be performed within one year from the making of it.

The sale of the building materials of a demolished house, under a condition that all materials were to be taken down and cleared off the ground within two months, was held to be an interest in land and to come within both the Statute of Frauds and Sale of Goods Act above referred to, and thus must be in writing, etc. Materials such as bricks, timber, and slates supplied to a builder and fixed piecemeal do not come within the Sale of Goods Act it is clear, but in view of the case of Clarke *v.* Bulmer (*supra*), it is thought that such items as a machine, or steelwork, being made by the manufacturer and delivered complete, not delivered piecemeal, nor fixed piecemeal in the building, do come within the Sale of Goods Act.

Nevertheless, in all circumstances a clear and lucid agreement in writing is the most satisfactory basis of any contract of whatever kind it may be.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting—ED.

Measurement for Sub-contractor's Work.

[REPLY TO "W.," DECEMBER 16.]

SIR,—Surely in all sub-contracts, payment is made by the general contract under the direction of the architect, and I fail to see how a contractor can claim any "benefits" from method of measurement. He is surely entitled to be paid only what is paid to the sub-contractor, and that only for what is actually done, of which the quantity surveyor is judge.

X.

Safe Resistance for Beams.

SIR,—We shall be very much obliged if your readers could inform us whether there is any ready formula—without battling with "moments" and higher algebra—for ascertaining safe resistances per unit of sectional area for (*a*) concrete beams or lintol; (*b*) reinforced beams or lintol, either with bar or rolled steel joist.

LINTOL.

Condensation on Shop Windows.

[REPLY TO "TROUBLED," DECEMBER 16.]

SIR,—I do not think "Heatum" has given "Troubled" the best advice. Most of "Troubled's" difficulty comes from the gas lighting inside his shop. The combustion of gas in air produces, among other objectionable products, water, which is condensed on the inside surfaces of cold windows. If "Troubled" uses electricity for lighting throughout his shop much of his difficulty will disappear. If in addition he will instal some low-temperature heating tubes along the bottom of his windows which need consume only about ten watts per foot run he will never be troubled any more.

L. L. ROBINSON.

P.S.—If "Troubled" cares to communicate with me I can tell him where to get the best heating tubes. I am not interested either professionally or as a manufacturer in the goods recommended.

Washable Paints.

SIR,—I have a damp kitchen, and on one wall the paper has come away. I am thinking, therefore, of having the walls painted with a washable paint. Nothing is, of course, damp-proof, but a good paint would be better than a paper. I should be very much obliged if you would advise me of an appropriate paint. I adjudge there is such on the market, but I am not in a position to know to whom to apply.

H. COLLETT.

Cleaning White and Marble Hearths.

SIR,—We have about thirty white marble hearths to clean in an old Queen Anne house. Can any of your correspondents suggest any better method of cleaning more thoroughly than by bleaching with lime?

J. & Co.

Arbitration.

[REPLY TO "PROFIT AND LOSS," JANUARY 6.]

SIR,—Every building contract should contain a clause providing for arbitration in case of disputes arising out of the contract, whatever sum is involved. Building disputes are best settled by arbitration, in that they mostly concern technical matters; and, unless some point of law arises, recourse need not at any time be made to the Court. If a dispute, in which a point of law does not arise, is taken direct to the Court, it more often than not results in its subsequently being referred (by agreement, or by the order of the Court, which ever is applicable) to arbitration—so increasing the costs.

An arbitration can be, and often is, in respect to small amounts. It must be remembered that an agreement in writing to submit present or future differences to arbitration comes within the Arbitration Act of 1889. It is, of course, possible expressly to exclude the Act in the submission, and in so doing forego many of the advantages the Act gives; but this course will not necessarily make the reference any the less lengthy or less costly. Neither the Royal Institute of British Architects, nor the Surveyors' Institution, nor, indeed, any other Institution, can, as a body, arbitrate in any instance; though these, together with many others, are called upon from time to time to nominate arbitrators when charges are generally based on the time occupied in the arbitration, to which the cost of stamp duty (10s.), and any actual expenses necessarily incurred, must be added. The Institute of Arbitrators, for instance, gives the arbitration fee as £3 3s. when the time expended does not exceed half an hour, and generally, it may be taken that £2 2s. per hour is an average fee.

LAW.

COMMISSION ON LONDON SQUARES

A further sitting of the Royal Commission on London Squares was held at the House of Lords on Tuesday, January 10. Lord Londonderry presided.

Mr. Maurice Webb, a Vice-President of the R.I.B.A., said that the Institute, after careful consideration of the requirements of the metropolis with regard to open spaces, was of the opinion that the existing squares and open spaces should be preserved. In submitting this recommendation the Institute had considered the following important factors which should govern public policy—those concerning amenity, public health, and traffic. If these squares were not preserved the Institute believed that London would become increasingly provincial in character, and architecturally inferior to many other cities of a metropolitan standing. As to public health, the need for garden squares for the health of city workers was even more important to-day than it was a century ago. Also, every open space provided valuable relief as a dissipation point for London traffic.

The Institute considered that the existing legislation in this country for controlling the further development of built up areas was seriously in need of amendment, and that the best and most equitable means of preserving London squares would be by including the necessary powers in early legislation for such control. Such legislation might provide that all open spaces to which the public had had access over a fixed period of years, or which had been used in common by the tenants of adjoining property, should be retained as permanent open spaces.

Mr. E. R. Abbott, who gave evidence on behalf of the Town Planning Institute, of which he is a past-president, said it would be possible for the London County Council, as the town-planning authority, to safeguard the majority of the squares and their surroundings by means of a scheme, or schemes under Section I. (2) of the Town Planning Act, 1925. It was probable that in many cases the voluntary co-operation of the present owners would be forthcoming, and, even if that were not so, it appeared that in respect to squares, the buildings round which are at present in residential occupation, no compensation would be payable in view of Section II. (2). Other squares were protected by Act of Parliament, and that therefore the question of compensation did not arise in respect to them. In other cases leases existed with many years to run, which would so discount any possible future building value that, even if any compensation could be claimed, it could only be a small amount. There were a number of squares where the surrounding buildings, or many of them, were used for commercial purposes, and the first thing to determine was the best use to which each square, whatever the present character of the surrounding property, ought to be put, with due regard to private rights.

Referring to the question of compensation for restriction of building on squares, witness said the opinion of the Institute was that there should be no compensation if the surrounding buildings were at present residential or were forthwith zoned for residence by town-planning schemes. If zoned for commerce, compensation, if any were payable, should be according to the damage, if any, inflicted by the restriction.

The Commission adjourned.

MEETINGS

Institution of Structural Engineers (Midland Counties Branch). Annual Dinner. At Midland Hotel, Birmingham. 7 p.m.

TUESDAY, *January* 17.

College of Estate Management. Mr. L. Thompson on "Regional Planning." 5.30 p.m.

Institution of Structural Engineers (Midland Counties Branch). Mr. V. H. Lawton on "The Design of Multiple Story Steel-framed Buildings to conform with the Institution's Report on Steelwork for Buildings. Part I.: Loads and Stresses."

WEDNESDAY, *January* 18.

Leeds and West Yorkshire Architectural Society. Discussion on "That the trend of Education in the Architectural Schools is proving too Academic and Divorced from Practice." At 62, Woodhouse-lane, Leeds. 6.30 p.m.

Royal Institute of British Architects. Mr. Henry M. Fletcher on "Architecture of Provincial France." 8 p.m.

Northern Architectural Association. Mr. W. Milburn on "Modern Hospitals." 7.30 p.m.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "The Mediæval Period: the Plans, Vaults, Buttresses." 6 p.m.

Royal Society of Arts. Mr. A. H. Barker on "Methods of Radiant Heating." 8 p.m.

Borough Polytechnic Institute. Annual Prize Distribution by the Right Hon. Lord Montagu of Beaulieu. 7 p.m.

THURSDAY, *January* 19.

Institute of Builders. Captain W. T. Creswell on "Building Contracts and Sub-contracts." At the Chamber of Commerce, Birmingham. 5.15 p.m.

Victoria and Albert Museum. Mr. L. Ashton on "English Samplers." 5.30 p.m.

Institution of Structural Engineers. Discussion on "Preparation for Examinations." Introduced by Mr. Ewart S. Andrews. 6.30 p.m.

Society of Antiquaries. Ordinary Meeting. 8.30 p.m.

Structural Engineering as a Profession.

The Institution of Structural Engineers has published (price 6d.) a booklet entitled "Structural Engineering." This booklet is the first and only effort of its kind by a professional Institution which examines the qualifications of practitioners, to show these practitioners, either whilst still at school or when they have reached the student period, how to train for those examinations. The booklet is also framed so that it may be some sort of guide to the many parents and guardians who make inquiry at frequent intervals as to how their sons can and should be trained for the profession. It is evident that much time and labour has been given by the Institution Board of Examiners to the preparation of the booklet, and we feel that it should be of considerable use to students in the profession. That part which contains a bibliography of text-books and reference works may well prove of use to every practising engineer as well as to students.

THE BUILDING TRADE

LOCAL AUTHORITIES AND TENDERS

From time to time our attention is invited to methods and circumstances of universal interest attending the offer, and the acceptance, or rejection, of tenders for works. The comments arise, more especially, in connection with tenders invited and dealt with by local authorities. Recently our attention was called to a decision by the Eastbourne Corporation to accept a certain tender which exceeded, by some £326, the lowest tender, which latter had been received from a firm, one of the members of which was also a member of the corporation. We are informed that, at the same time, it was resolved, on a vote taken, that the corporation would not enter into any contracts with firms or companies whose directors or shareholders should be found to be members of the corporation. The first part of this incident which arrests our notice is the claim of the lowest tender.

An employer may, of course, in his invitation, bind himself to accept the lowest tender, but it is well known that it is more usual for him to state that he will not bind himself to accept the lowest or any tender. If the point is ignored, however, there is no legal bond in the invitation to tender, which is an "invitation to treat" or an offer to negotiate to receive offers. In Spencer *v.* Harding (1870, L.R. 5, C.P. 561), where the question to be decided was whether there was a contract or promise to sell to the person who submitted the highest tender, Wills J. said "In advertisements for tenders for buildings it is not usual to say that the contract will be given to the lowest bidder, and it is not always that the contract is made with the lowest bidder. Here there is a total absence of any words to intimate that the highest bidder is to be the purchaser. It is a mere attempt to ascertain whether an offer can be obtained within such a margin as the sellers are willing to adopt." This last sentence sums up the law on this subject and has often been referred to.

Although, therefore, the Eastbourne Corporation was *within its rights* in determining not to accept the lowest or any tender, it does, however, seem reasonable that if after a comparative examination of the tenders received in response to their invitation, normally, we should not expect a *local authority* to reject the lowest tender and to contract for one exceeding it by £326, unless some appreciable fault had been found in the lowest tender.

Below we give a brief review of the position of members of corporations and other local authorities both under statute and enunciated by recent Case law.

Under Section 2 (1) (c) of the Municipal Corporations Act, 1882, "a person is not eligible for service as a councillor if he has directly or indirectly, by himself or his partner, any share or interest in any contract or employment with, by, or on behalf of the council concerned. Section 14 (3) states that a person shall not be qualified to be elected or to be an alderman unless he is a councillor or qualified to be a councillor.

Now this "interest in the contract" must be a pecuniary, or, at least, a material, interest; though it need not promise or achieve any pecuniary advantage. See England *v.* Inglis (1920, 2 K.B., 636), where the defendant, who was a member of a municipal corporation, carried on business as a jeweller and optician. The optical department was managed by his son, who was not a partner but a paid employee. A contract was made between the son, in his own name, and the municipal corporation, for the supply of spectacles to the children of the schools controlled by the corporation's education committee. The contract was carried out by the son, the spectacles were paid for by him with his own cheque, and he received payment in his own name from the corporation and paid the amounts so received into his own banking account. The spectacles were supplied in cases bearing the son's name, but also the defendant's business address, some of the cases being taken at the loss or expense of the defendant out of his stock. The son alone derived direct pecuniary benefit from the contract, but the shop was provided and the establishment expenses paid by the father, the defendant. It was determined, that the father's name and address on the spectacle cases helped to advertise his own business with the consequent probability of increasing his own trade. It was held that, on these facts, the County Court judge was warranted in finding that the defendant (the father) had an "interest" in the contract with the son within Section 12 (1) of the Act of 1882, and that the former was therefore liable to the penalty imposed by Section 41 (1), which provides that "if any person acts in a corporate office . . . after becoming disqualified, he shall for each offence be liable to a fine not exceeding fifty pounds, recoverable by action."

In Lapish *v.* Braithwaite (1926, A.C. 275), the respondent, who was an alderman of the City of Leeds, attended a meeting of the city council and voted upon a resolution. At that time, four companies (incorporated under the Companies Act) had running contracts with the council, and the respondent held a number of shares in each of these companies and was the managing director of them all. It was held on appeal, in the House of Lords, that an alderman, who is also a shareholder and managing director of companies having current contracts with the borough council, if he is paid as managing director *by salary and not by commission*, is not disqualified for being an alderman under Sections 12 and 14 of the Municipal Corporations Act, 1882, as a person having a share or interests in any contract with the council.

This may have been considered by some members of the Eastbourne Corporation as having some bearing on their own circumstances. But we are unable to decide whether the circumstances are parallel throughout both incidents.

Similar provisions appear in the Local Government Act, 1894. Section 46 (1) provides that "A person shall be disqualified for being elected or being a member or chairman of the council of a parish or of a district other than a borough or of a board of guardians if he . . . is concerned in any bargain or contract entered into with the council or board, or participates in the profit of any such bargain or contract or of any work done under the authority of the council or board."

Section 46 (2) provides, "That a person shall not be disqualified for being elected or being a member or chairman of any such council or board by reason of being interested . . . in any contract with the council or board as a shareholder in any joint stock company: but *he shall not vote* at any meeting of the council or board on any question in which such company are interested."

Section 46 (8) says that "If any person acts when disqualified, or *votes when prohibited* under this section, he shall for each offence be liable on summary conviction to a fine not exceeding £20."

In Everett *v.* Griffiths (1924, I K.B., 941) the plaintiff claimed a declaration that the defendant was disqualified under Section 46 (1) of the Local Government Act, 1894, from sitting as a member of the Islington Board of Guardians, because, being a manager of the Farmers and Cleveland Dairies Co., Ltd., who held a contract with the guardians for the supply of milk, he was a person concerned in the contract; that he was further disqualified under Section 46 (2) of the Act, because he had, although he was a shareholder of that company, sat on the board and voted on September 14 and October 5, 1922, on the issue whether the contract should be given to his own company. The plaintiff also claimed an injunction to restrain the defendant from sitting as a member of the board and penalties to the amount of £40. It was held that this action could not be maintained; for the proper procedure was by an information in the nature of a *quo warranto*. (The writ of *quo warranto* is a high prerogative writ by the Crown against one who claims or usurps any office, franchise or liberty, to inquire "by what authority" he supports his claim. It lies also when any public trust is executed without authority; but it has long fallen into disuse in that it has been supplanted by what is called an "information in the nature of a writ of *quo warranto*." Here the process is speedier and not so inconveniently decisive as by the ancient writ; and it is now the usual remedy brought to bear on corporation disputes with private persons.) Secondly, it was held that the penalties could not be recovered by action, as the statute provided that the penalties should be recovered in a Court of Summary Jurisdiction, and that remedy alone could be followed. Thirdly, that when a resolution was passed unanimously by a board every member present must be taken to have voted for the resolution, even although the votes were not expressly recorded.

It will have been noticed that to prove "interest" in a contract it is not necessary that the contract with the council be made by the accused direct; it is sufficient if it can be shown that the councillor is indirectly interested in a contract made between another and the council; for instance, where the councillor is employed by the person contracting with the council. In one instance, the mere letting for hire of a horse and cart at a fixed sum to a contractor for the purpose of carrying out work by him for a local authority was held to be sufficient disqualification of the councillor letting the horse and cart for hire.

A person is held to be interested in a contract made colourably under the name of another person so that his interest is concealed, or if he takes any assignment in the contract by way of security. Nor is he absolved if the contract has not been made under seal, in circumstances when it must be under seal to make it a valid and binding contract on all parties thereto.

There is then disqualification, however little may be the sum involved, or even if no remuneration at all has been agreed upon. In R. *v.* Rowlands (1906, 2 K.B., 292), a member of a board of guardians collected rent on behalf of the board, there being no previous agreement as to commission. Subsequently, after deducting commission, he paid over the receipts to the board and was held to be disqualified, even though he had returned the sum retained as commission before the board had declared his office vacant.

The disqualification as a councillor continues during the period of the contract, or so long as he is held to have any interest in it. It may be said that no disqualification is placed on a councillor when a contract has been made with a local authority by his agent, even if the contract purports to be made on the latter's behalf if he can prove that he has no knowledge of it. Also, there is no disqualification attaching to any ownership of a share or interest in any lease, sale or purchase of land by the council, or any agreement for the same; or any agreement for the loan of money, or any security for the payment of money only, or in any newspaper in which the local authorities' affairs are advertised, or in any company which contracts with the authority for lighting or

supply of water, or in any insurance with the council or in any railway company, or any company incorporated by Act of Parliament, or royal charter, or under the Companies' Acts, or in any society registered under the Industrial and Provident Societies Acts, any of which companies may be doing normal business with the council. A rental of a house from the local authority does not disqualify (see Section 125 of the Housing Act, 1925). Nor does the disqualification apply in respect of rate-compounding agreements entered into with the council. (See Holden *v.* Southwark Corporation (1921, 1 Ch., 550.))

The position would therefore appear to be that, as the law now stands, any trader or member of a firm of traders, or one whose interests are intimately bound up with such persons, must be prepared to sacrifice, during the time he is serving on a local authority, etc., any opportunity occurring for his entry into a contract with that authority in order to avoid risk of disqualification.

Although this may seem to our readers a harsh fact, yet it must be realised that the law is made *pro bono publico*, and it is obvious that hard-and-fast rules are necessary to control the human factor in the many undercurrents which sometimes exist. And that, after all, service on municipal bodies is voluntary, and the effect of strict legislation tends to test the sincerity of those offering themselves for the duty of citizenship.

REDUCING CONSTRUCTION COSTS

IT is not the purpose of these notes to emphasise the need for keeping down building costs, for architects and contractors are all too familiar with the amount of building work that is held up when the cost is too high. The object is rather to show how costs can definitely be reduced on an item that occurs to a greater or lesser extent in practically every building contract, whatever the type of construction adopted. That item is concrete, and the cement which forms its most expensive constituent.

While steel and other building materials are governed by standard specifications, so that one knows exactly the strength of, for instance, a steel stanchion, there is no standard specification for definite ultimate strength of concrete. The strength given by different mixes made and tested in a laboratory is fairly constant and known, but this is no indication whatever as to the strength of the same mixes under site conditions. This point was well made by Mr. Gilbert Jenkins in his recent presidential address at the Architectural Association, when he emphasised the number of factors that were liable to affect the strength of concrete. It is quite certain that operatives classed as "semi-skilled" and "unskilled" have determined the strength of many a structure in which concrete is used either wholly or in part. And knowing this, the designer usually specifies a richer mix, or larger members, or both, to cover all the possibilities that might reduce the strength of the structure. In steel construction one may specify stanchions and girders that will give exactly the required strength plus the regulation factor of safety; but in concrete, owing to the lack of certainty as to what the exact ultimate strength will be, an additional margin is allowed to cover the variable factors that arise during construction.

Generally, the above sums up the position in this country. Obviously it is a state of affairs that will have to be seriously considered if reinforced concrete is to hold its own against other materials at a time when prices generally show a tendency to fall. In the United States, to which we are in the habit of looking for research work in concrete, the handicap under which concrete is suffering owing to the lack of certainty as to its ultimate strength has been realised, and remedial measures have now gone so far as the publication of a tentative standard specification for reinforced concrete agreed by the leading United States' engineering societies. In this standard specification the fact that, thanks to the research work of Professor Abrams at the Lewis Institute, Chicago, the ultimate strength of concrete *can* be predetermined is realised, and it is recommended that in specifying concrete the ultimate strength should be stated.

This is, of course, a radical departure from time-honoured custom. It means that the specifications of proportions of cement, sand, and ballast goes by the board, and the contractor is given a great deal of latitude. The modern United States' specification either states, "Concrete shall have a strength of ..... lbs. per sq. in. at 28 days," or "Concrete shall be made with approved aggregate, and shall be mixed in the proportion of ..... gallons of water to ..... bags of cement." It will be seen that the onus of proportioning is left entirely to the contractor. Providing he produces the required strength he may use a 1 : 8 or a 1 : 5 mix; or, providing he keeps to the specified ratio of water to cement, he may pack as much aggregate into the mix as he possibly can. In the latter case he is governed solely by workability, for if more than a certain proportion of aggregate be added to a specified proportion of water to cement the mix would be so stiff that it would not flow into the forms. Thus the practical considerations in the execution of the work come to the aid of the designer.

In view of the fact that several leading United States' designers are adopting these up-to-date methods of specifying concrete, with which, moreover, the contractors express themselves as being entirely satisfied, a few notes on the principles underlying the method may be of interest. The subject is not one of academic interest only. The designer benefits by knowing the exact ultimate strength of the concrete, and with this definite knowledge can design without making very wide allowances for site variables. The contractor benefits because instead of being tied to definite proportions of cement to aggregate he is at liberty to make the mix as lean as possible within the limitation of the specified ratio of water to cement. The building owner benefits by cheaper construction; in the case of a recent large building in which this method of specifying concrete was adopted a saving of 7 per cent. of the cement bill was effected compared with the older method of "1 : 2 : 4," the whole of this saving being represented by lower cement consumption made possible by the substitution of scientific proportioning instead of leaving the mixer operative to interpret rule-of-thumb in his own way.

More than any other factor, the strength of concrete is governed by the ratio of water to cement. It has been proved beyond question that, with similar aggregate, no matter how rich or how lean a concrete may be mixed, ***provided it is workable***, the strength will be the same. This is undoubtedly the most valuable factor in concrete that has been discovered since it was found that the incorporation of steel made concrete strong in tension as well as in compression. A natural development was to ascertain the exact strength of concretes made with varying ratios of water to cement. This has been done, and is the basis on which modern United States' specifications are formed. The results are as follows:—

28-day Compressive Strength in lbs. per sq. in.	Gallons of water per cu. ft. of cement.
2,000	5.62
2,500	4.80
3,000	4.37
3,500	3.90
4,000	3.65

These figures are the minimum strengths that should result from operations that are not under rigid control; where rigid control is exercised they would be increased by 500 lbs. per sq. inch. It should also be noted that they are the results of tests on American Portland cements, which generally have not such high strength as British Portland cement, particularly rapid hardening and aluminous cements.

From this table it is possible to make a concrete of which the strength is definitely known. This is a great stride in the manufacture of concrete, but it must be remembered that correct results are also dependent upon all the other factors, such as grading, period of mixing, curing, etc., being equal and thorough. It explodes the idea that it is only necessary to add more cement to get greater strength, for a 1 : 4 mix will be no stronger than a 1 : 6 mix if in the former case the water content is doubled.

How does this work out in practice in constructional work? First, the designer decides the strength of concrete necessary for the different parts of a structure, and either from published data or by special tests ascertains what ratio of cement to water will give this strength with the aggregate to be used on the job. It is only then necessary to specify the cement-water ratio, all the rest being left to the contractor with the knowledge that if this ratio is adhered to the desired strength will be obtained.

For his part, the contractor is governed by job conditions. On the one hand he must use sufficient water to make a concrete that will flow into the forms and around the reinforcement; on the other hand, he desires to use as stiff a mix as possible, because the more aggregate he can use with a given quantity of water the less cement he is using and consequently the greater his profit. It will be seen that so far as strength is concerned it does not matter how lean the mix may be providing the cement-water ratio is maintained according to specification and so long as the concrete is workable. Thus for floors and mass concrete in which a stiff mix may be used the proportion of cement will be much less than in thin reinforced members where the concrete must be of a wet consistency. But the strength of the concrete will be the same, because when extra water has to be added to the batch to get a mix that will flow readily more cement will have to be added as well, so that the water-cement ratio, and consequently the ultimate strength, are the same as in the stiff mix.

These notes sum up briefly the progress that has recently been made in the design of concrete mixes for definite strength by the cement-water ratio method. Its use may cause the contractor and foremen to widen their store of knowledge, but once the principle is grasped it presents no difficulty. And in any matter appertaining to the strength of a building it is surely worth a little trouble to be able to know with certainty the strength of every member. The trouble of learning will also be repaid in cash to the tune of 7 or 8 per cent. of the cement bill, as United States' contractors have discovered after a period of antagonism to a new idea. In concrete matters we have so frequently done in this country to-day what the United States did yesterday that it is highly probable that before long this method of designing concrete will be taken up here.

A New Church, Ontario.

We learn that a new church is to be erected in Ontario at a cost of 250,000 dollars. Construction is expected to commence next February. United Kingdom firms interested in the supply of church furniture and equipment can obtain further particulars of this matter, including the name and address of the selected architect, on application to the Department of Overseas Trade, 35, Old Queen-street, S.W.1.

EVERYDAY SCIENCE FOR ARCHITECTS AND BUILDERS—I

By A. M. GILES, B.Sc., A.I.Struct.E., A.M.I.E.E., *Author of "Mechanics in Daily Life," etc., Lecturer in Building Science, Structural Mechanics, Graphical Statics, etc., at the Northern Polytechnic School of Architecture and Building.*

DIAGRAMS AND ILLUSTRATIONS BY M. R. DUMVILLE.

THE requests for information made during the past eighteen months in the Inquiry column of this paper have prompted the writing of a series of articles dealing with the applications of science to architecture and building. It is acknowledged that there are a thousand and one applications of science which are of general interest to the builder, and there is possibly no better method of approaching and classifying them than by placing them in the usual divisions and sub-divisions of science.

The General Principles of Physics.

This is a fairly wide part of the subject, dealing as it does with such items as the specific gravity or relative density of materials and the methods employed for determining them. Head of water, water pressure, flow of water, and hydraulics generally, including, of course, the hydraulic testing machine, should be considered under this heading. The principles of lift and force pumps, siphons, etc., as well as their applications to such matters as flushing systems, will also be included.

Density and Specific Gravity.

Builders and those employed in the building trade may at some time or other be engaged in shoring operations, when it is necessary for them to be able to find out the weight of material that they are required to shore up. Or, at another time, they may even want to know the weight or load involved in the construction of a roof, such as the weight of the slates or tiles, the weight of timber in the principals, purlins, etc., as well as the weight of the truss. They may also want to find out the weight of an iron girder, or even the weight to be carried by the girder. The weight of a tank or cistern and its contents may also be wanted, as well as a large number of other things too numerous to quote.

Rather than find out these weights in any haphazard sort of way, it has been agreed that the weight of a definite volume should be known, and from this, either by simple proportion or by multiplication, the weight of any volume can be found.

The volume that has been chosen is the cubic foot, and among building terms, when we speak or think of the density of a material, we mean the weight of a cubic foot, *e.g.* :—

	Density in lbs. per cubic foot.		Density in lbs. per cubic foot.
Lead	707	Oak	60
Gravel	110	Pitch Pine ...	45
Sand (dry)	100	Water	62.5
Brickwork	120	Linseed Oil ...	58.6

For a continuation of this list one needs only to refer to any builder's pocket-book of rules and tables, etc.

Example.

1. Suppose we wish to find the weight of 12/14, 6 in. × 3 in. oak joists.

Take the density of oak as 60 lbs. per cu. ft.

First find the volume of the timber.

Each joist = 14 ft. × 6 in. × 3 in. cu. ft.
= 1¾ cu. ft.

Therefore the 12 joists = 12 × 1¾ cu. ft.
= 21 cu. ft.

Therefore the weight of the timber
= 21 × 60 lbs.
= 1,260 lbs.

2. A piece of brickwork of the dimensions shown in the diagram (Fig. 1) is carried by an iron girder. What is the load on the girder?

Suppose it is one brick thick, *i.e.*, 9 in., then the volume is

12 ft. × 6 ft. × 9 in. × ½ cu. ft. = 27 cu. ft.

Take the density of brickwork as 120 lbs. per cu. ft., then the load supported by the girder = 27 × 120 lbs.
= 3,240 lbs., almost a ton and a half.

Specific Gravity.

Although tables giving the densities of the different materials used in building are useful, it has been found extremely convenient to know the weights of substances when compared with some standard substance. For this purpose water has been chosen as the standard, and its density is 62.5 lbs. per cu. ft. If, now, we find how many times a cu. ft. of a given material is heavier than a cu. ft. of water we have found a number which gives us the relative density of the material compared with water. This number is called the "specific gravity" of the material, *e.g.* :—

The density of lead is 707 lbs. per cu. ft., therefore the number of times it is heavier than water is 707 divided by 62.5 which is 11.31 This number 11.31 has two names :— (1) The relative density of lead, (2) the specific gravity of lead. Therefore the "specific gravity" of any material may be defined as the number of times it is heavier than water, volume for volume.

Let us next consider some of the methods that may be adopted for finding the density, *i.e.*, the weight, of a cu. ft. of any material. Of course, the methods used will depend upon whether the material is solid like a piece of granite, or liquid like linseed oil, or powder like cement.

Solids.

There are two things that have to be determined :—

(*a*) the weight, (*b*) the volume.

(*a*) The weight is found quite easily by using any reliable balance, or scales and weights as it is more commonly called.

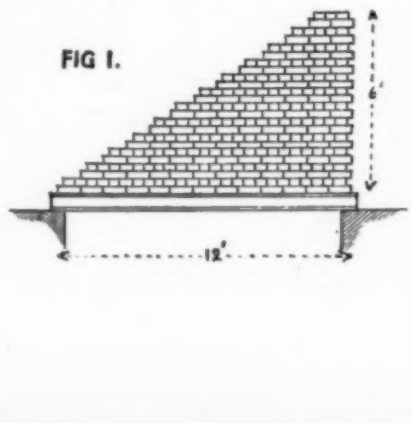
(*b*) The volume presents no difficulty when the dimensions of the piece of material are easily measured, *e.g.*, a rectangular piece of wood, or a rectangular sheet of lead of given thickness. It is only when we are given a lump of material whose dimensions are not easily measured that we have to adopt the following methods :—

1. By Displacement.

(*a*) A rough and ready method is as follows :—

Hang up a pail or any large can. Fill it with water until it flows over. The pail will then be full to the brim. After the water has finished dripping from the pail, place a vessel underneath so as to catch any further overflow. Now by means of a piece of string fastened to the lump of material, lower it carefully into the water in the pail. The vessel below the pail will catch the overflow, and the volume of this will, of course, be equal to the volume of the material, *e.g.* : Suppose you want the density of a lump of granite.

FIG 1.



Let the weight of the granite = 4 lbs.

Let the volume of the water that has overflowed = 1½ pts.

Now a pint of water = 34.5 cu. in.

Therefore 1½ pts. = 51.75 cu. in.

Therefore the volume of the granite = 51.75 cu. in.

Therefore 51.75 cu. in. of granite weighs 4 lbs., and by easy calculation we find that 1,728 cu. in. or 1 cu. ft. of granite weighs

FIG 2.

133.56 lbs. Therefore the density of granite is 133.56 *lbs per cu. ft.*

From the above experiment it is quite easy to find the specific gravity of the granite. Remembering that a gallon of water weighs 10 lbs., or that a pint of clear water weighs a pound and a quarter, the weight of the 1½ pts. of water is easily seen to be 1.9 lbs., and since the weight of the equal volume of granite is 4 lbs., the specific gravity of the granite is found by dividing 4 by 1.9, which gives 2.1.

Therefore the *specific gravity of granite* = 2.1.

(*b*) Another method, which involves the same principles as those explained in the previous experiment is easily understood by reference to the diagram (see Fig. 3). Here

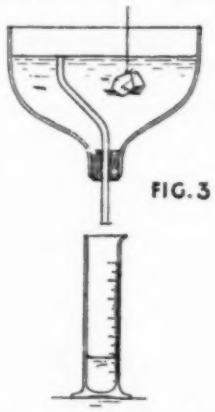


FIG. 3

FIG.4.

the glass cylinder used for catching the overflow is graduated in cubic inches, and therefore the volume of the overflow, which is the volume of the irregular piece of material that is used, is read off directly.

(*c*) A still simpler method for finding the volume of the irregular piece of granite is to use the glass cylinder mentioned in the previous experiment, provided it is large enough (see Fig. 4). Allow the lump of granite to be lowered into the water in the cylinder until it is completely immersed. Naturally the volume of the granite will be equal to the amount that the water rises in the vessel.

(Note.—When finding the volume of a material that absorbs water, such as Portland stone, before immersing it, it should be soaked in water for an hour, and then allowed to drain.)

Instead of relying upon the value obtained by one experiment, it is better to repeat it three or four times, and then take the average (mean) value of the results so obtained.

2. By the Principle of Archimedes.

It occasionally happens that more accurate values are required. We then resort to the use of the Principle of Archimedes, which

says that :—"When a solid is immersed in a liquid it loses weight, and the weight it loses is equal to the weight of the displaced liquid." To verify this principle we perform an experiment with the apparatus shown in the illustration (Fig. 5).

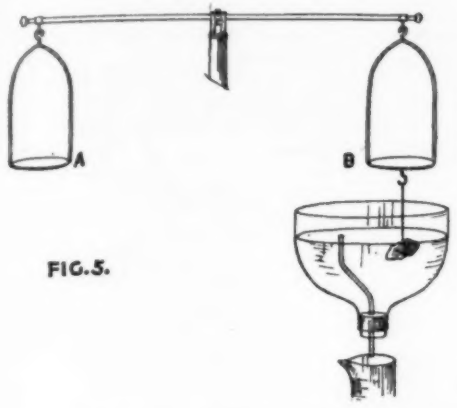


FIG. 5.

A special balance is used. A piece of rock, or iron, or lead, weighing about a pound, is suspended by a piece of thread below the pan *B*. Weights are then placed in pan *A* until the two sides balance one another.

We then arrange for the piece of lead to be immersed in water in a piece of apparatus like that used in Fig. 3. Care should be taken that the whole of the water displaced by the lead should be caught in the graduated vessel.

Next alter the weights in pan *A* until balance is again restored. The difference between the weight in pan *A* now and that before the lead was immersed in the water is the weight that the lead has lost because of its being immersed in water, or briefly, the lead has lost weight.

Now find the weight of the water in the graduated cylinder, *i.e.*, of the water that has been displaced by the lead. It will be found that this weight will be equal to the weight lost by the lead.

Experiment.

Piece of lead weighed in air = 1.42 lbs.
When in water it weighed = 1.29 lbs.

Loss of weight = 0.13 lb.

Therefore it lost 0.13 lb. when immersed in water.

The amount of water displaced and caught in the graduated cylinder was 3.6 cu. in., and the weight of this water is 0.13 lb.

Therefore the weight lost by the lead when immersed in water is equal to the weight of the displaced water. Thus we get the verification of this very important principle :—"The Principle of Archimedes."

CHIMNEY TROUBLES—I

By FREDK. W. DYE.

THE efficiency of a chimney lies in its "draught," the upward movement of air (or gases) in the chimney, and this should be constant, only varying in strength with the heat of the chimney and its height. Anything less than this makes the chimney a troublesome one, sometimes a complete failure.

CAUSE OF DRAUGHT.—With brickwork chimneys the draught is brought about by the warmth which the heated brickwork imparts to the air within them It may be argued that a chimney sometimes possesses a weak draught when it is new and has not been used, in which case it must be supposed that the air within receives a little warmth from some source, as it is the difference in temperature of the air within and without the chimney that creates the draught. It

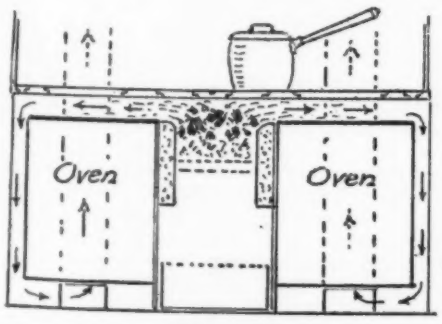


FIG. 1.

may have been sometimes noticed that a good chimney can have its draught reversed in mid-summer, when the outer air is warmer than that in the chimney.

Gravity is the cause of the draught, cold air being heavier than heated air and forcing the latter upwards; and, as is well known, when a chimney has a fire alight at its base, sending up hot gases and heating the brickwork, the draught is very strong, constant and unfailing. Even an iron pipe chimney will have a useful draught in it due to the ascent of hot gases, without the assistance that the retained heat in brickwork affords.

It will be asked, why is it, then, that some chimneys fail by causing smoke to come into the room; or are sluggish and, apparently, deficient in draught — the draught which should be keen and constant under normal conditions?

KITCHEN RANGE CHIMNEYS.—The kitchen chimney usually has the strongest draught of any because the fire is that of a closed stove —a furnace in miniature—the burned gases from which are hotter than from a grate fire. This chimney, too, practically always extends up above the roof ridge and, consequently, seldom suffers with down-blow. Yet a not infrequent complaint is that the draught is poor because the fire does not burn briskly or the ovens do not heat.

A close-fire kitchen range requires a fairly good draught, as the smoke and gases from the burning fuel have to be carried, firstly, in a horizontal direction, then downwards, and again horizontally before they can ascend. Fig 1, showing a range with front plates removed to expose the flues, illustrates this.

LOSS OF DRAUGHT.—If the draught through the fire fails in strength, the fire becomes less bright and the heat to the ovens is lessened accordingly. If the chimney draught is normally good, then the failure must be due to "leakage" between the chimney and the fire. What may be considered as a golden rule in range-fixing is that it must be such as will ensure that all the air entering the chimney first passes through the fire. There must not be openings around the range, not even crevices, nor missing soot doors, nor holes in the chimney, which permit air to pass in without going through the fire. A ventilator or a copper flue, opening into the chimney, can quite spoil the draught through the range. (A copper flue or flue of a coke boiler is permissible if provided with a damper, to close soundly, when these fires are not alight.) The average kitchen chimney usually has too strong a draught for the range, as it can make the fire roar and over-heat the ovens, but this is no excuse for allowing leaks to exist, with an unknown ill effect.

FIXING PORTABLE RANGES.—A rather common sufferer from air-leakage is the "portable" range, particularly if it is fixed in front of an old disused range. Fig. 2 gives an idea of this, the arrows showing where air is found to pass (wrongly) into the chimney without going through the fire; flue pipe not jointed soundly (very soft glaziers' putty is good for this); leakages around the covering-in-plate which closes the mouth of the chimney (a common fault with any kind of range); leakages at the joints of the range itself, due to rough handling in transit (soft putty for these joints; putty first softens and then hardens with heat); the flues of the old range letting air pass even though the dampers are closed, etc.

TESTING THE CHIMNEY.—If a range lacks draught, try the chimney by simply opening the sliding door of the covering-in-plate, thrusting in a large handful of shavings or crumpled newspaper, lighting it and then nearly closing the sliding door. Through the open crack it should be seen that the shavings burn with a fierce roar, some of them flying up the chimney. Blame cannot then be attached to the chimney. If this

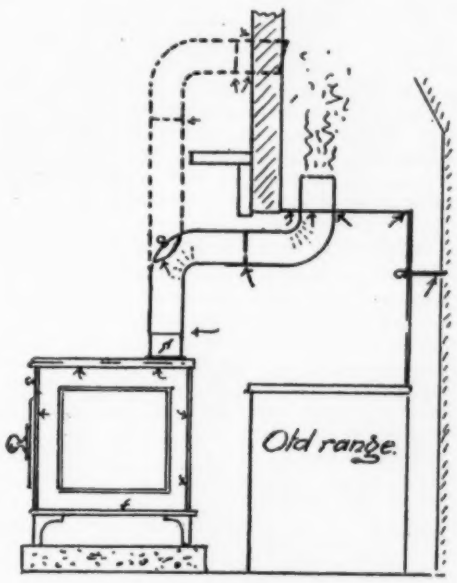


FIG. 2.

does not happen, then the chimney must be examined to see what prevents its acting.

As stated, a ventilating opening in the chimney, near the kitchen ceiling, will allow such an inflow of air (cold air) as seriously to affect the range and it would affect the burning shavings below the opening. The same can be said of another flue leading in (from washing copper) if unprovided with damper, or with ill-fitting damper (which has often been found). There may be a hole or leakage from outside, if it is an external wall (for twice has it been found that holes have been made to "improve" the draught). Or (what every fitter fears), there may be a brick come away from the brickwork that divides the kitchen chimney from another. When all other examinations fail this latter fault is tried for as follows: A smoky fire is made in the range and observation outside may perhaps show a little smoke coming from an adjoining chimney (having no fire at its foot), but this may not be the case, as the kitchen chimney would possibly draw air down its neighbour. The next thing to be done, therefore, is to find a means of putting a sack over the top of the kitchen chimney, for a brief time, to see if the smoke comes out of another chimney; it may come through the grate opening in a room. The object is to prove whether there is communication between the kitchen chimney and another.

Finally, a belief should not be encouraged that a kitchen chimney has some peculiar quality of its own which makes it ineffective. If it is sound brickwork, 15 feet high or higher, with no holes in it, it should have a draught of ample strength. If such a chimney terminates below the roof line it may suffer with "down-blow," but as a chimney it should serve well, even with a bend in it.

THE DESIGN OF BEAMS AND GIRDERS—I

AN ELEMENTARY EXPLANATION OF THE APPLICATION OF THEORY TO PRACTICAL DESIGN

BY EWART S. ANDREWS, B.Sc., M.Inst.C.E., M.I.Struct.E.

BENDING MOMENT.

IN order to find the stresses in a beam we must be able to determine two quantities—one of which is called the Bending Moment at the point, and the other the Section Modulus of the beam. We will proceed to explain how the bending moment may be calculated in any given case.

If we take any point along the centre line of a beam and consider the forces on one side of the point, then the moment of all these forces about the point is called the Bending Moment at the point.

If we took the forces on both sides, the moment would be zero, because the beam is in equilibrium under the action of all the forces and the moment about any point of a system of forces in equilibrium must always be zero. It does not matter whether we consider the forces on the left of the point or the forces on the right of the point—we shall obtain the same result, and for the purpose of checking the accuracy of our work we often work from each side and see if our results come the same.

Positive and Negative Bending Moments.

Bending moments are special forms of ordinary moments of forces (first moments of forces), and are positive or negative according to the direction in which they tend to turn the body. It is convenient to adopt the following convention with regard to signs of bending moments depending upon the deflected form which the beam takes up.

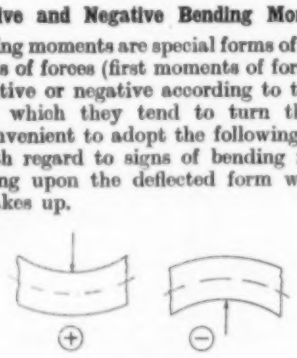


FIG. 1.

Referring to Fig. 1, if the deflected form of the beam is such that the centre of curvature is above the beam, and, therefore, the bottom of the beam is in tension, we call the bending moment positive; if the form is such that the centre of curvature is below the beam, and therefore the top of the beam is in tension, we call the bending moment negative. In general we may say that we shall obtain correct results according to this convention if we call moments caused by reactions positive and those caused by loads negative.

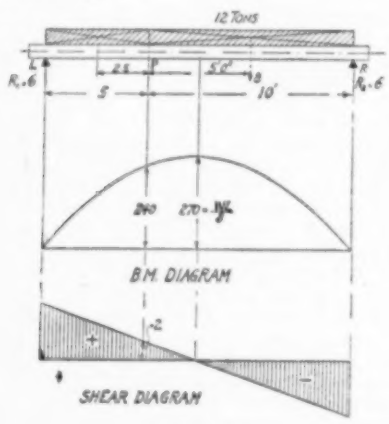


FIG. 2.

Now consider the beam indicated in Fig. 2, which is simply supported on a span of 15 ft., and carries a load of 12 tons uniformly distributed along it. Suppose that we wish to calculate the bending moment (usually written for short as *B.M.*) at the point *P*, at distance 5 ft. from the left-hand support *L*. In a uniformly loaded beam, the reactions must obviously be equal to one another, and must be each equal to one-half of the total load, *i.e.*, 6 tons in our case.

Now consider the forces on the left-hand side of the point *P*; they consist of the upward reaction R_L of 6 tons and the downward force of the portion of the load between *L* and *P*. This portion of the load is 4 tons, and it acts through the centre, *i.e.*, at 2·5 ft. from *P*.

We therefore reason as follows:—

Bending moment at *P*
$= B_p =$ Moment about *P* of all forces to left of *P*
$= R_L \times 5 - 4 \times 2{\cdot}5$
$= 30 - 10 = 20$ foot-tons.

As we shall see later it is more convenient to express bending moments in inch-tons or inch-pounds, so we say:—

$B_p = 20 \times 12 = 240$ inch-tons.

We will now check that we shall obtain the same result if we work from the right-hand side instead of from the left.

The forces on the right are the upward reaction R_R of 6 tons, and the downward load between *R* and *P* which acts through its centre, *i.e.*, 5 ft. from *P*. We then have—

$B_p = 6 \times 10 - 8 \times 5$
$= 60 - 40 = 20$ foot-tons
$= 240$ inch-tons.

Bending Moment Diagrams.

Now suppose that we calculated the bending moment at a number of points along the beam and set up to scale lengths representing the bending moment at the various points. By joining up the points thus obtained we should obtain a diagram called the Bending Moment Diagram. In the case of a uniformly loaded beam we shall find that this diagram is the curve called a parabola, and we can prove that in the general case of a load *W* uniformly distributed over a simply supported beam of length *l* the maximum bending moment occurs at the centre and is equal to $\frac{Wl}{8}$.

In some cases, as we shall see later, it is easier to obtain the bending moment diagram for a beam by a graphical construction than to make the calculations necessary to determine the bending moment at various points.

Shearing Force in a Beam.

In calculations involving the design of beams and girders it is convenient to consider a quantity which is called the Shearing Force at any point of the beam (often called "the Shear"). The shearing force at any point of a beam may be defined as the algebraic sum of all the forces at right angles to the centre line of the beam to one side or the other of the point.

In deciding upon a rule for signs of shearing forces we may call upward forces to the left as positive and downward forces to the left as negative, upward forces to the right being called negative and downward to the right positive. It is necessary to reverse the rule for the two sides because if we take the forces on both sides the result must be zero since the forces are in equilibrium and, therefore, their resultant or sum is zero.

Take the beam which we have already considered in relation to Fig. 2; we then have, considering the forces on the right
Shearing Force at *P*

$= S_p = R_L - 4$
$= 6 - 4 = 2$ tons.

If we worked from the other side we should have—

$S_p = -R_R + 8$
$= -6 + 8 = 2$ tons.

If we proceed in a similar manner to that adopted for bending moments and plot to scale the shearing force at a number of points, the resulting diagram is called the Shear Diagram.

MAXIMUM BENDING MOMENTS.

In practical calculations we always require to find the maximum bending moment, and in finding the position at which this occurs we make use of the following rule:—

The bending moment of a simply-supported beam has maximum value at the point at which the Shearing Force is zero or passes from positive to negative.

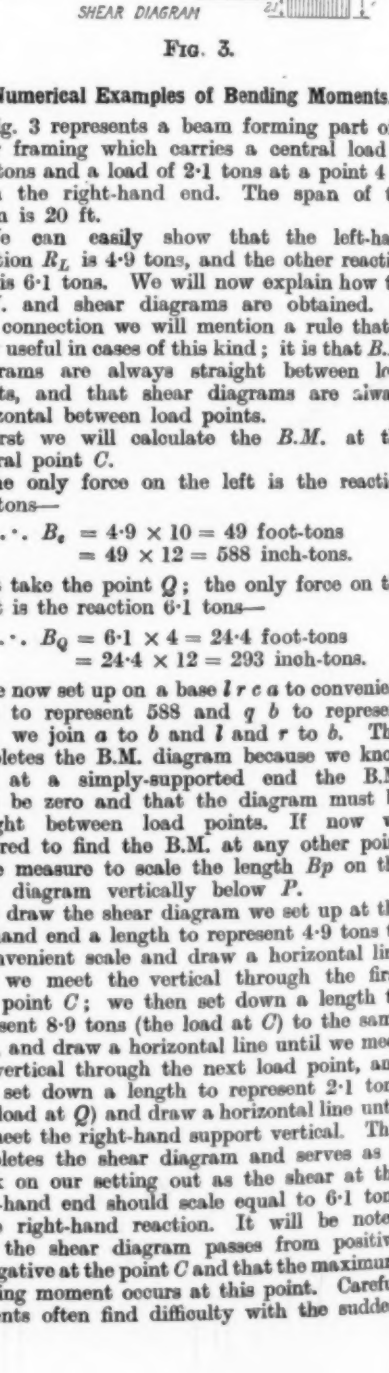


FIG. 3.

Numerical Examples of Bending Moments.

Fig. 3 represents a beam forming part of a floor framing which carries a central load of 8·9 tons and a load of 2·1 tons at a point 4 ft. from the right-hand end. The span of the beam is 20 ft.

We can easily show that the left-hand reaction R_L is 4·9 tons, and the other reaction R_R is 6·1 tons. We will now explain how the *B.M.* and shear diagrams are obtained. In this connection we will mention a rule that is very useful in cases of this kind; it is that *B.M.* diagrams are always straight between load points, and that shear diagrams are always horizontal between load points.

First we will calculate the *B.M.* at the central point *C*.

The only force on the left is the reaction 4·9 tons—

$\therefore B_c = 4{\cdot}9 \times 10 = 49$ foot-tons
$= 49 \times 12 = 588$ inch-tons.

Next take the point *Q*; the only force on the right is the reaction 6·1 tons—

$\therefore B_Q = 6{\cdot}1 \times 4 = 24{\cdot}4$ foot-tons
$= 24{\cdot}4 \times 12 = 293$ inch-tons.

We now set up on a base *l r c a* to convenient scale to represent 588 and *q b* to represent 293; we join *a* to *b* and *l* and *r* to *b*. This completes the B.M. diagram because we know that at a simply-supported end the B.M. must be zero and that the diagram must be straight between load points. If now we required to find the B.M. at any other point *P* we measure to scale the length *Bp* on the B.M. diagram vertically below *P*.

To draw the shear diagram we set up at the left-hand end a length to represent 4·9 tons to a convenient scale and draw a horizontal line until we meet the vertical through the first load point *C*; we then set down a length to represent 8·9 tons (the load at *C*) to the same scale, and draw a horizontal line until we meet the vertical through the next load point, and then set down a length to represent 2·1 tons (the load at *Q*) and draw a horizontal line until we meet the right-hand support vertical. This completes the shear diagram and serves as a check on our setting out as the shear at the right-hand end should scale equal to 6·1 tons—the right-hand reaction. It will be noted that the shear diagram passes from positive to negative at the point *C* and that the maximum bending moment occurs at this point. Careful students often find difficulty with the sudden

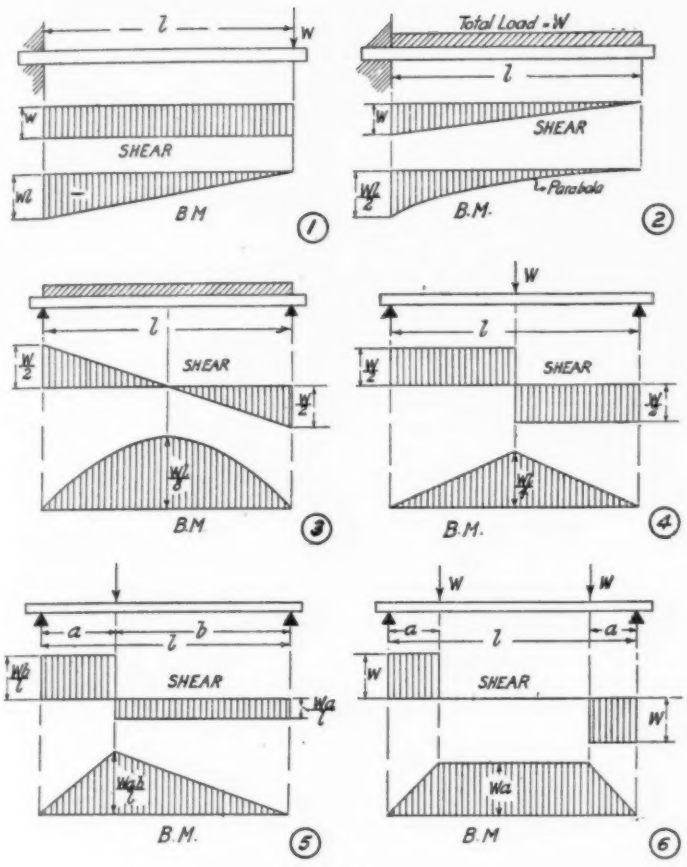


FIG. 4.

steps which occur in the shear diagram with "point" loads; this arises from the fact that we imagine these loads to be applied at mathematical "points," whereas in practice the load must be spread over a short length of the beam; the result of this will be to take the corners off the shear diagram, so that in practice the shear will change somewhat in the manner indicated in dotted lines.

Standard Cases of Shear and B.M. Diagrams.

Certain cases of loading of beams occur so frequently in practice that it is convenient to calculate the B.M. by formulæ without going through the various steps in the calculation. Fig. 4 represents six common cases; the first two relate to cantilevers, which are beams securely fixed at one end and projecting freely at the other. The other four cases represent four common cases of loading with "simply-supported beams"; it is convenient to remember the forms of these diagrams and the values of the maximum bending moments because time can thus be saved. But it is not essential to remember these diagrams, because we can always work out in any given case from first principles, even if we take longer in doing so. There is no magic in formulæ; it is much more important to understand clearly the principles of mechanics than to be able to spout out formulæ by the yard.

Numerical Example 2.

We will now take the case illustrated in Fig. 5, of a beam that has an isolated load as well as a uniformly distributed load.

We can easily show that the reaction R_G is 9·9 tons and the reaction $R_F = 10{\cdot}9$ tons.

The shear at F is 10·9 and will reduce gradually as we move towards P until, when we arrive at P, it will have reduced by an amount represented by the load on the length FP. Now the load per foot is $\frac{15{\cdot}9}{20} = {\cdot}795$ tons, so that the load on FP is equal to $8 \times {\cdot}795 = 6{\cdot}4$ tons nearly; by setting up a length Fa to represent 10·9 therefore, and setting down $b\,c$ to represent 6·4 at P in the manner indicated, we get $a\,c$ the first portion of the shear diagram. We now set down $c\,d$ to represent 4·9, the isolated or "point" load at P and join $d\,e$, $e\,G$ representing 9·9, the reaction at G. This completes the shear diagram, and we note that it passes through zero at the point P, and that therefore the maximum Bending Moment will occur at that point.

We can calculate the Bending Moment at P in the following manner:—

$B_P = R_F \times FP$ – Moment about P of load between F and P.

The load between F and $P = 6{\cdot}4$ tons, as explained above, and it acts halfway between F and P., *i.e.*, 4 ft. from P.

$$\therefore B_P = 10{\cdot}9 \times 8 - 6{\cdot}4 \times 4$$
$$= 87{\cdot}2 - 25{\cdot}6 = 61{\cdot}6 \text{ foot-tons}$$
$$= 739 \text{ inch-tons.}$$

Alternatively we could draw the B.M. diagram by realising that our loading is a combination of cases (3) and (5) shown in Fig. 4.

For the isolated load we shall have a triangle of height $\frac{4{\cdot}9 \times 8 \times 12}{20}$ foot-tons = 23·5 foot-tons = 282 inch tons, and for the uniformly distributed load we shall have a parabola of height = $\frac{15{\cdot}9 \times 20}{8}$ = 39·75 foot-tons = 477 inch-tons.

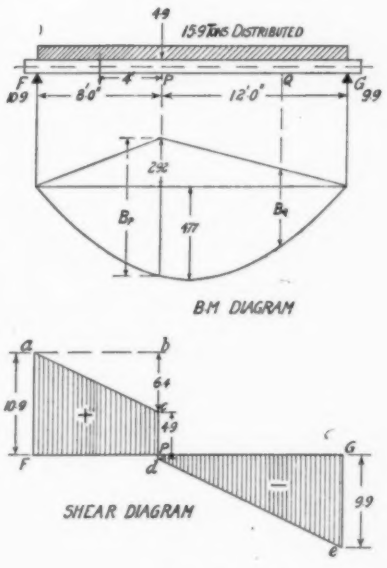


FIG. 5.

The triangle and parabola can be drawn to scale on opposite sides of a base-line as shown and by measuring right across the diagram at any point such as Q we obtain the bending moment B_Q at that point. If this be drawn and the bending moment B_P be scaled off it will be found to be 739 inch-tons.

Graphical Construction for B.M. and Shear Diagrams.

The shear and B.M. diagram for any simply-supported beam can be obtained by the following graphical construction, which is one application of a general graphical construction known as the "Link and vector polygon construction."

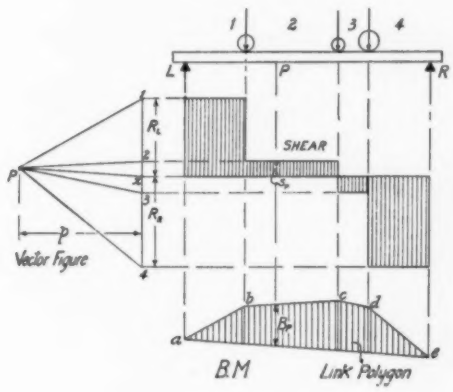


FIG. 6.

Let W_1, W_2, W_3, Fig. 6, &c., represent any number of loads upon a beam $L\,R$. We draw vertical lines through the supports and loads, number the spaces between the loads in the manner indicated and then for further work we call the forces by the spaces between which they lie; for instance, load W_2 is called the force 2, 3, because its line of action separates the spaces, 2, 3.

We now draw a line to the side of the figure and we set down to a convenient force scale lengths 1–2, 2–3, 3–4, to represent the loads; we next project these points horizontally across the corresponding spaces thus obtaining a series of steps which are sometimes called the "shear outline."

Next we choose any point or *pole* P and join it to each of the points 1, 2, &c., on the vector line; next we draw across space 1 a line $a\,b$ parallel to P_1, then across space 2 $b\,c$ parallel to P_2, and so on, the last line, or link as it is called, $d\,e$ being parallel to the last vector ray P_4. On joining $a\,e$ we complete the B.M. diagram and we then draw Px parallel to $a\,e$; then $4x$ measured to scale gives us the reaction R_R and $x1$ gives us R_L.

The point x is then projected horizontally across the span and gives the shear base line. In this construction it should be noted that the B.M. at any point such as P is obtained by measuring the *vertical* intercept B_P; many students get hold of the erroneous idea that we should measure at right angles to the base $a\,e$.

To determine the scale of the B.M. we apply the following rule:—

To obtain the number of foot-tons to the inch multiply the number of feet to the inch by the number of tons to the inch and multiply the result by the polar distance (p) in actual inches.

Suppose, for instance, the length scale is 4 ft. to the inch and the load scale 5 tons to the inch, and p is $2\frac{1}{2}$ inches, then the B.M. scale will be $4 \times 5 \times 2\frac{1}{2} = 50$ foot-tons to the inch.

The polar distance p should always be chosen so as to make this a convenient scale to use. We can deal with distributed loads by this method by dividing the load into a number of portions and assuming the weight of each portion to be an isolated load acting through its centre.

AN UNUSUAL REINFORCED CONCRETE STRUCTURE

250-TON POINT LOADS CARRIED ON 45-FT. SPAN BEAMS.

A GOOD example of the constructional use of reinforced concrete in circumstances where structural steel would have been, if not impossible under the circumstances prevailing, at any rate far more costly and difficult, is to be found in the premises recently completed in Stamford-street, Waterloo, for the Cornwall Press.

The basement of the building is to be used for printing purposes, and one of the requirements in regard to the installation of heavy printing machines is the provision of as large unbroken spaces as possible, necessitating as few internal piers as possible. The spacing of the latter therefore is kept as wide as practicable, varying from about 37 ft. to 45 ft., according to the architectural arrangement of the building. It is not, however, intended to carry the wide spacing up through the whole of the eight stories of the building, which is to be used for warehouse and office purposes, and the basement ceiling therefore has to provide for the carrying of the loads from the upper floors as point loads from piers spaced at the more usual distance of from 15 ft. to 20 ft.

The upper floors are of the usual type of construction and present no particular features of interest structurally; the pier loads at ground floor level, from the accumulated floor loads, amount to 200 to 250 tons on each pier, and some of the beams in the basement ceiling are therefore called upon to carry the somewhat unusual loading of two point loads of 250 tons each on a span of 45 ft. As the amount of headroom in the basement is an important consideration, the depth of the beams had to be kept within reasonable limits, nowhere exceeding 5 ft. total, and it will be seen that in meeting this condition reinforced concrete has the immense advantage of continuity over steel construction.

A glance at Fig. 1, showing a diagrammatic loading plan of the basement, will at once make this apparent. The double lines indicate the main beams taking their bearings on the internal piers (black squares), while the single lines show the arrangement of secondary beams. At each point of intersection a point load from the superstructure is taken, the magnitude of which in tons is indicated by the figures within the circles.

It will be seen that a single simply-supported girder over the 45-ft. span would have a bending

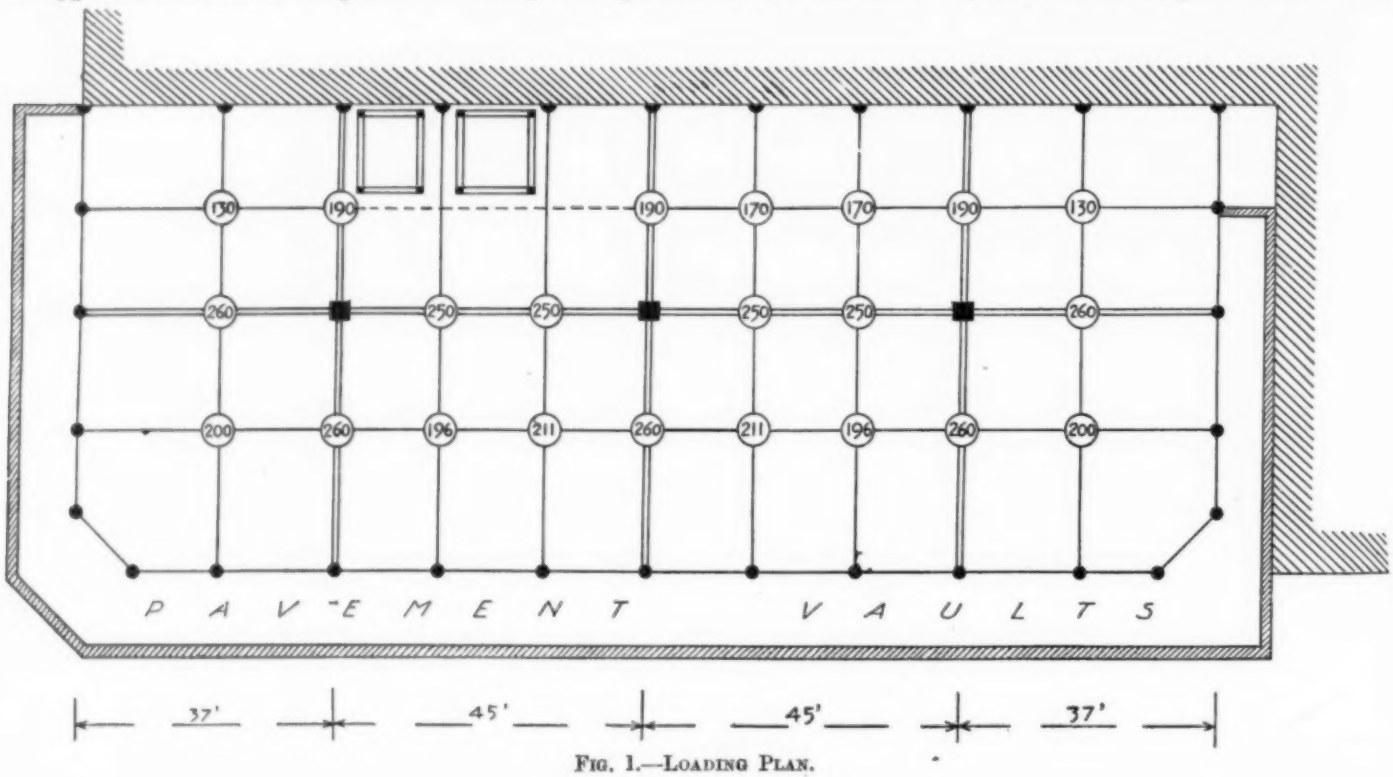


FIG. 1.—LOADING PLAN.

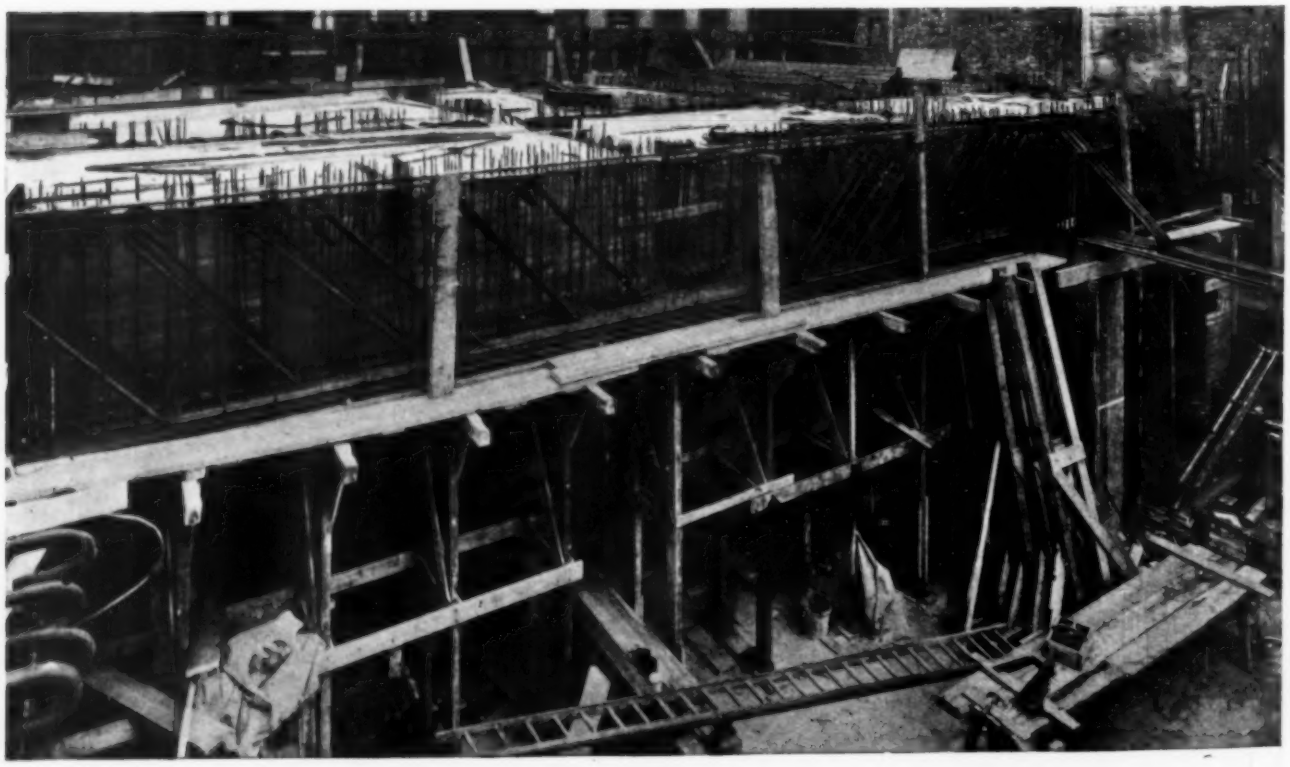


FIG. 2.—BEAM UNDER CONSTRUCTION.

moment from the point loads of 3,750 ft. tons, which would require about 120 sq. in. of steel in the top and bottom flanges. It would be nearly impossible to procure real continuity over the supports, at any rate in both directions, in a steel girder, whereas the reinforced concrete construction makes use of the continuity, not only in the beams themselves but also through the homogeneous connection with the piers. By a suitable proportioning of the dimensions and a corresponding arrangement of the reinforcement it is possible to distribute the bending moments over the beams and piers so that the former do not attain more than about half the values found above, and as in addition the concrete acts as compression member the saving in steel is obvious.

In disposing of the point loads from the piers the principle in the design has been to distribute the loads on the two beams at the intersection point in the proportion dictated by their relative deflections, and in this manner it has been possible to keep all the secondary beams within a depth of 4 ft. total, while all the main beams are 5 ft.

The ultimate load on the internal piers amounts to nearly 1,000 tons on each, and the foundations are taken down to a considerable depth in order to find a good ballast bed. A view of the steelwork in one of the piers, with the spread foundation, is given in Fig. 3. Main beams have three layers of thirteen rounds, and the secondary beams three layers of nine rounds, the bars being cranked as required to meet the shear. A photograph of the actual placing of the reinforcement for one of the beams is shown in Fig. 2, while a view of some beams just after the striking of the centering is given in Fig. 4.

It will be noticed that a number of barrels have been left in the beams to provide holes for the carrying through of heating and sprinkler pipes, cables, &c., and for providing attachments for any future fixtures or machinery that may be required to be slung from the beams; similarly the soffits of the floor panels have been liberally sprinkled with inserts for hanging bolts, so that all future needs may be met for attaching all possible kinds of fixings in the machine room.

An interesting feature in connection with the building is the vault retaining wall surrounding the premises, by means of which an uninterrupted space under the pavement, for storage or transport, is added to the basement at a small cost. The retaining wall is of the self-contained cantilever type, and is calculated for a surcharge of 4 cwts. per sq. ft. on the pavement.

The engineer for the constructional work is Mr. A. Drew, of 108, Victoria-street, S.W.1, with whom Mr. R. N. Stroyer, of Abbey House, Westminster, S.W.1, collaborated in the design of the reinforced concrete work described above. The contractor is Mr. A. E. Frost, of Ewart-grove, N.22. Rapid hardening Portland cement was used for the work.

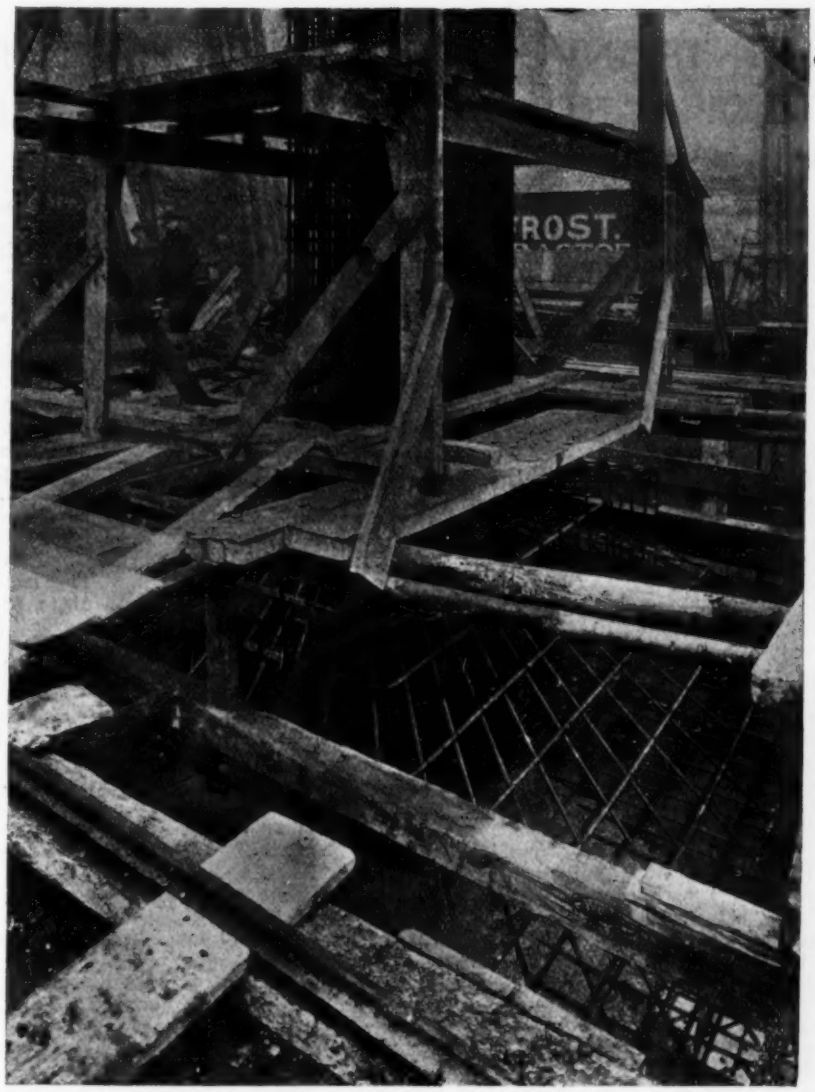


FIG. 3.—REINFORCEMENT OF COLUMN.

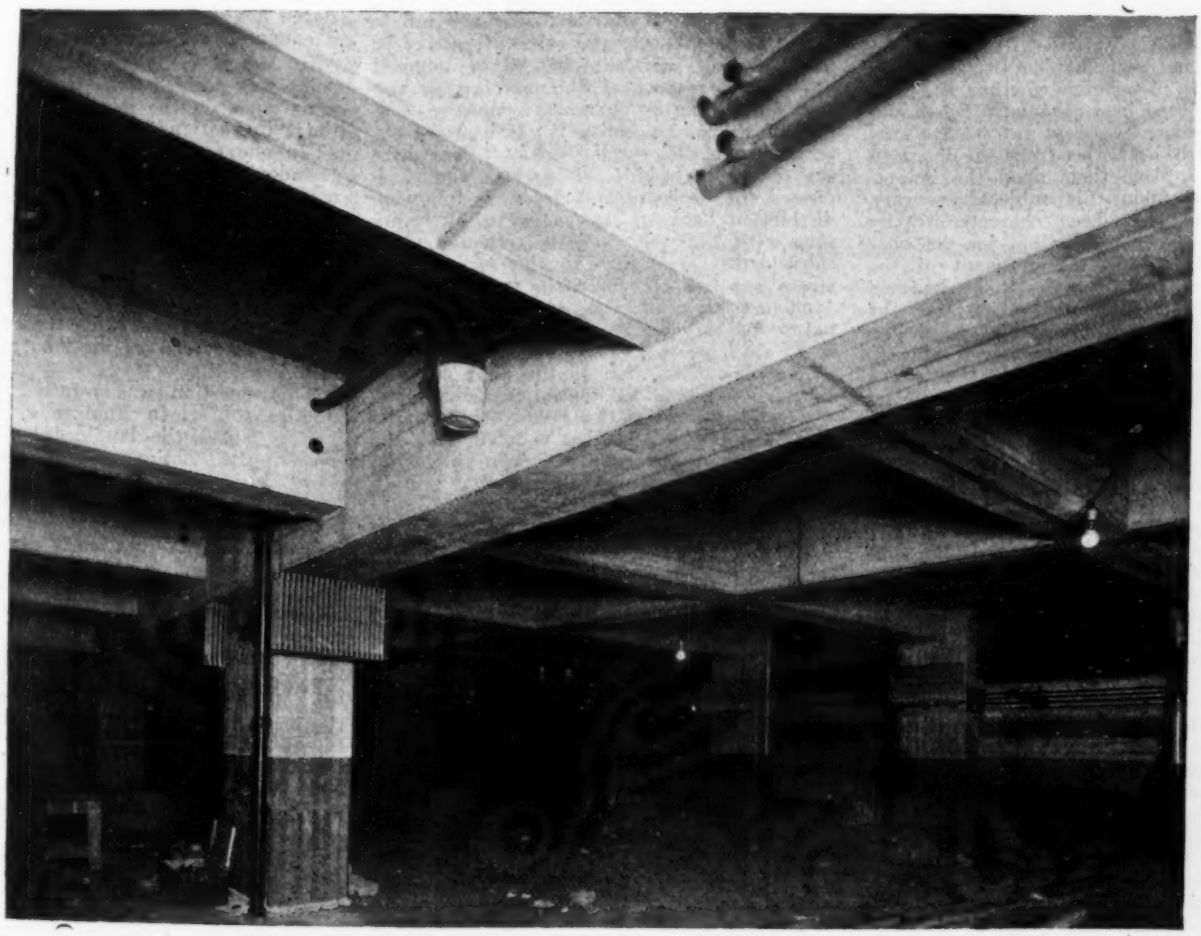


FIG. 4.—VIEW IN BASEMENT.

POINTS IN CONNECTION WITH THE LAW OF LANDLORD AND TENANT—XII.

OUTSIDE LIABILITIES IMPOSED ON TENANTS BY COVENANT.

HAVING in the last articles dealt with the rights of tenants as to assigning and subletting, in the present article we propose to deal with a question which has been the subject of much litigation, viz., the liabilities which by statute may be imposed on the premises or the owner, but which may be shifted on to the tenant by the force of covenants contained in the lease or tenancy agreement.

In leases there is usually a covenant which imposes liability on the tenant to pay rates and taxes and other contingent sums, to use a neutral expression, which varies in different tenancy agreements, but if fairly stringent may run as follows :—"The lessee shall pay and discharge all present and future taxes, rates, charges, assessments, impositions, outgoings, duties and burdens whatsoever, imposed or charged upon the demised premises or upon the owner, or occupier in respect thereof."

Certain taxes are known as "landlord's taxes," these being charges which if paid by the tenant in the first instance can (in the absence of agreement) be recovered by the tenant from the landlord. It is unnecessary here to enter into any detail as to these charges, as it seems sufficient to say that Property Tax under Schedule A of the Income Tax Acts, and tithe rent charges, as defined by section 9 of the Tithe Act, 1891, alone cannot be shifted on to the tenant by agreement, but as regards tithe rent charges this is only the case after the passing of that Act March 28, 1891, as it made such contracts void. As to tithe rent charges in the City of London, see Property and Estates Company, Ltd. *v.* Blunt (1921, 2 Ch. 141). As to rates, we shall refer to some cases in a later article. The liabilities we are treating on in this article are those which arise out of statute such as the statutory duty to remedy a nuisance or to pay the cost of making up streets under the Public Health Acts or the Private Street Works Act, and considerable litigation has taken place to determine whether the particular words used in covenants in leases and tenancy agreements serve to remove the burden of such liabilities from the landlord or owner and place them upon the tenant. The decisions upon this subject are very numerous and have been characterised by the Courts as very conflicting, for not only is the description in the covenant of the nature of the charge sought to be imposed upon the tenant important, but also the words which define the incidence of the charge, for instance, whether they serve to impose the particular charge on the tenant or leave it as charged on the owner or on the premises, and this may also turn upon the terms of the Act or other enactment by which the charge is imposed. This will become apparent when we consider the cases, but an example may make our meaning clearer. Supposing an Act of Parliament to impose a charge on the premises : the first thing to be determined will be whether the words used in the covenant—such, for instance, as the words "assessments"—will embrace that charge, and secondly, whether the words used in the covenant as to its incidence will place it upon the landlord or remove it to the tenant. Thus under the Public Health (London) Act, 1891, section 4, where a nuisance arises the notice may be served on the person by whose default the nuisance arises or continues, but if such person cannot be found, on the owner or occupier of the premises, and in Brett *v.* Rogers (1897, Q.B. 525), a nuisance having arisen from the state of the drains on certain premises, the owner had been called upon under the above Act to remedy the nuisance and had incurred expenditure in so doing. The house was leased under a repairing lease which contained a covenant that the tenant should pay "all duties, assessments and impositions, parochial or otherwise, which now are or shall at any time during the demise be assessed or imposed on or in respect of the premises," and it was held by a Divisional Court that this was a "duty" in respect of the premises, and that, as the covenant had been framed not only to include a charge "imposed upon the premises" but also in "respect of the premises," the sum expended could be recovered by the owner from the tenant. This decision was approved by the Court of Appeal in Farlow *v.* Stevenson (1900, 1 Ch. 128), a case where a notice to reconstruct the drainage of a house let on a lease for 14 years had been served on the owner under the Metropolis Management Acts. The lease contained a covenant by the tenant to pay all "duties and assessments whatsoever" payable in respect of the premises, and it was held the word "duties" transferred this liability to the tenant.

At the time this decision was delivered a narrow view had been taken of the effect of such words, as was instanced by a case referred to in that decision, Tidswell *v.* Whitworth (L.R. 2, C.P. 326), where the word "impositions" was held not to embrace such a liability. We start from these two cases, Brett *v.* Rogers and Farlow *v.* Stevenson, because in those decisions the previous cases were carefully considered, but a wider view has been taken of the effect of such covenants in later cases, as we shall now show.

In Foulger *v.* Arding (1902, 1 K.B. 700; *The Builder*, March 22, 1902), a case which like Brett *v.* Rogers (*ubi sup.*) turned on the requirement of the sanitary authority under the Public Health (London) Act, 1891, to remedy a nuisance, in this case from a defective privy, the covenant was that the tenant should "pay and discharge all taxes, rates, including sewers main drainage, assessments, and impositions whatsoever which now are or which at any time or times hereafter may be taxed, rated, assessed, charged or imposed upon or in respect of the premises or any part thereof on the landlord, tenant, or occupier of the said premises." It is to be observed that the word "duties" was here omitted. The Court of Appeal again reviewed the decisions and drew the following distinction between the earlier cases beginning with Tidswell *v.* Whitworth and those subsequently decided. In the earlier cases stress was laid rather on the words defining incidence than on the description of the nature of the charges to be imposed; that is to say, on the words which impose the obligation rather than on the description of the charges, such as impositions, outgoings, etc., and following the trend of the later cases the Court held that coupled with the expressions in the covenant defining the incidence of the charge the word "impositions" served to transfer the above liability from the owner to the tenant.

In this case it was argued that if the word "impositions" covered a structural defect such as existed in that case in connection with the privy, it might also extend to the extreme case of an order requiring part of the building to be pulled down because it infringed a building line, but the Court pointed out that the covenant must be construed with reference to the instrument concerned, viz., a lease regulating the relations of landlord and tenant, and that what would be within the contemplation of the parties to such an agreement was an element to be taken into consideration. The Court in this case commented upon the unsatisfactory condition of the decisions on this subject.

The above observations as to what could be within the contemplation of the parties led to the contention being raised in Stockdale *v.* Ascherberg (1904, 1 K.B. 447; *The Builder*, June 27, 1903 in the Court below) that in a short agreement for three years it could not have been within the contemplation of the parties that the tenant should have to bear the cost of remedying a nuisance in respect of a defective drain at the requirement of the sanitary authority under the Public Health Act, 1875, at a cost of £83 10s., the yearly rent being but £55 under a covenant to pay "all taxes, rates, assessments and outgoings of every description for the time being payable in respect of the premises as they become due," but the Court of Appeal held that it was impossible to regard it as outside the contemplation of the parties that the sanitary authority should require improved sanitary arrangements, and that being so, if a tenant enters into an agreement in perfectly clear and unambiguous terms the plain language could not be thrown aside and some limitation be introduced the meaning of which it would be very difficult if not impossible to define, and the word "outgoings" covered the expenditure here claimed. The tenant in this case relied upon Valpy *v.* St. Leonards Wharf Co. (1903, 67 J.P. 402), but the Court did not follow this decision and it has since been over-ruled by the Court of Appeal in Lowther *v.* Clifford (1927, 1 K.B. 130), a case we shall refer to hereafter.

In the Court below in Stockdale *v.* Ascherberg it had been also argued that under the latter words in the above covenant only outgoings of a recurrent nature were contemplated, and not an expenditure such as this which would occur once and for all, but this was negatived, and the point appears not to have been dealt with on appeal.

In Harris *v.* Hickman (1904, 1 K.B. 13; *The Builder*, November 21, 1903) it was held that when a tenant holds over as a yearly tenant it was inconsistent with a yearly tenancy that the tenant under a covenant to pay "outgoings" under the original agreement should be rendered liable for an expenditure which would exceed the rent, but the decision on this point was based on Valpy *v.* St. Leonards Wharf, a case which we have stated has since been over-ruled so it appears it cannot now be relied upon.

In Harris *v.* Hickman, however, another point was decided : the landlord had abated a nuisance on the premises after receipt of the "intimation" notice from the surveyor given under section 3 of the Public Health (London) Act, 1891, but before service of a notice by the sanitary authority under section 4 requiring him to abate the nuisance, and in an action by the landlord to recover the sum expended from the tenant under a covenant to pay "all assessments and outgoings," it was held that the owner having done the work voluntarily the expenses could not be recovered as an "outgoing" under the covenant.

This question was referred to by Lord Justice Collins in Foulger *v.* Arding (*ubi sup.*). There the landlord had acted after receiving the notice under section 4, and the Lord Justice said : "The plaintiff without waiting for any further compulsion in the matter did the work required by the notice himself, and the question is whether between him and his tenant the latter is bound under the covenant to recoup him in respect of the expenses of carrying out the work. It is not suggested that what the plaintiff did was not done under compulsion, or that if it is necessary for him to show that the work was done by him under compulsion in order to bring himself within the meaning of the words 'impositions charged or imposed in respect of the said premises' he is not in an equally good position for so doing as if he had waited for final compulsion in the matter by means of a 'nuisance order' under section 5 of the Public Health (London) Act."

These two cases show that before actually undertaking work it is well to wait at any rate until an order has been served on behalf

of the authority which, if disregarded, will certainly lead to proceedings being taken.

It will be noticed that all the cases to which we have hitherto drawn attention have been cases where the charge sought to be imposed on the lessee or tenant arose out of action taken by sanitary authorities under their statutory powers in respect of nuisances arising out of defects on the premises, and this much emerges from these cases, that to transfer such liabilities to the tenant by covenant the word "duties" (Brett *v.* Rogers and Farlow *v.* Stevenson), or the word "impositions" (Foulger *v.* Arding), or the word "outgoings" (Stockdale *v.* Ascherberg) have been held by the Court of Appeal to suffice as words of description to cover this kind of charge, provided that the covenant also contains words of incidence showing that it cannot be limited to the premises themselves but extends to charges imposed in respect of them on persons, namely, landlord, tenant, or occupier. (See per Lord Justice Collins in Foulger *v.* Arding). As regards the words of incidence, the safest form appears to be that used in this latter case: "assessed, charged, or imposed" (following the nature of the charge) "upon or in respect of the said premises or any part thereof on the landlord, tenant, or occupier of the said premises."

Remodelling of Tube Stations.

In pursuance of the policy of modernising the older stations on the District Railway, the Underground Company announce their intention to remodel the front of Mansion House station with a view to rendering it more conspicuous and attractive. Work is to begin at once. The entire station front will be rebuilt in Portland stone and will be brilliantly flood-lighted.

B.E.S.A.—PAINT AND VARNISH SPECIFICATIONS

THE growth of the paint and varnish industry during the last decade led to much keener competition, more cutting of prices and, in some cases, to reduction in quality, to meet competition. As an inevitable consequence buyers lost confidence, which in its turn resulted in the creation of new specifications and the tightening up of existing specifications and eventually to the "guarantee" method of contract, which was so disliked in the trade. As a result, a condition obtained in which a paint manufacturer had to tender to specifications each of which differed from the other as regards testing and type, in some instances reliance being placed upon chemical composition, in others on physical properties allied to chemical composition. As a result of these difficulties, the National Federation of Paint and Varnish Manufacturers got into touch with the British Engineering Standards Association, and through that association with the consumers themselves, with the object of drawing up a series of British Standard Specifications for paints, varnishes and painting materials which would be universally applicable to Government departments, railway companies, municipal authorities, and other large users. A conference was held in January, 1924, at which the whole question was discussed, and as a result a committee was formed to deal with the matter, constituted as follows:—Dr. J. Newton Friend (chairman), Mr. J. R. Sivess, Admiralty; Mr. A. V. Elsden, War Office; Dr. G. Rudorf, Dr. J. E. Ramsbottom, Air Ministry; Mr. T. A. Moore, India Office; Mr. D. Morrell, Office of Works; Mr. R. H. Harry Stanger, Crown Agents for the Colonies; Mr. W. H. Winny, O.B.E., G.P.O.; Mr. F. E. Wentworth-Sheilds, Institute of Civil Engineers; Mr. Asa Binns, Institute of Mechanical Engineers; Dr. R. E. Stradling, Department of Scientific and Industrial Research; Mr. A. S. Jennings, Incorporated Institute of British Decorators; Mr. F. A. Maythorn, Institute of British Carriage and Automobile Manufacturers; Mr. Richard Williamson, Institute of Naval Architects; Mr. H. D. Searles-Wood, Royal Institute of British Architects; Mr. R. W. Reid, Mr. G. Ellson, Railway Companies of Great Britain; Mr. F. W. Loasby, National Federation of Building Trades Employers; Mr. J. H. Humphreys, Bridge and Constructional Ironwork Association; Mr. F. Allen, Dr. C. B. Beavis, Mr. M. Harrison, Mr. S. K. Thornley, Mr. J. B. Graham, Dr. R. S. Morrell, Dr. H. H. Morgan, Dr. L. A. Jordan, National Federation of Associated Paint, Colour and Varnish Manufacturers; Mr. C. A. Klein, Mr. J. N. Tervet, Dr. H. H. Morgan, Oil and Colour Chemists' Association; Dr. G. Barr, National Physical Laboratory; Mr. G. A. Gale, National Federation of House Builders: Mr. W. H. Cantrill, National Federation of Master Painters and Decorators of England and Wales; Mr. A. R. Everest, B.E.A.M.A.; Mr. C. W. Price, Home Office; Mr. G. G. Elliott, High Commissioner for the Union of South Africa; Mr. T. H. Bowles, Government Laboratory; and Mr. W. C. Fenwick, Contracts Department, Air Ministry.

At the outset of the work it was evident that before satisfactory specifications for paints and varnishes could be prepared it would be necessary to deal with the raw materials used in their manufacture, and the work was consequently divided up into four sections as follows: (1) Raw materials; (2) enamels and ready-mixed oil and varnish paints; (3) varnishes; (4) bituminous and water paints. Committees were formed dealing with the first three of these items, and have sat continuously since their appointment. Some idea of the volume of work which has been dealt with by these Committees may be obtained from the fact that, as shown in the table, 46 specifications already have been published, while there are still another 24 in hand. In addition, attention is now being given to the preparation of specifications for gloss paints and enamels.

During the preparation of the specifications the question of standard colour patterns was raised, and in March, 1925, a Committee was formed within the Paint and Varnish Section to endeavour to obtain a standard series of colour patterns and names generally agreed upon amongst manufacturers, and to analyse these colours by some standard colorimetric method. It was also agreed to attempt some classification of colours according to permanency to light. This Committee has now completed the first stage of the work, and a proposed standard series of colour patterns and names has been circulated to the trade for consideration.

The specifications which have been prepared specify limits for the chemical composition and the physical properties of the materials, but one of the main difficulties with which the Committees have had to contend has been the fact that there has been little available data, correlating the physical properties and chemical composition of paints and varnishes and their ingredients with their performance in actual use. The preparation of the specifications has involved the consideration of an enormous number of problems dealing with this question, a large number of which have been dealt with co-operatively by the members of the Committee in their own laboratories. Indeed, it is difficult to estimate the value of the work which has been carried out in this manner by the members without fee or recompense, often at considerable personal inconvenience to themselves. Some of the problems, however, required research of too fundamental a character to be dealt with in this way, and these have been referred to the recently formed Research Association of the Paint and Varnish Makers, with which the closest co-operation is maintained, a special Research

COMPARISON OF PRICES OF BUILDING MATERIALS ON JANUARY 1st, 1927, WITH CURRENT PRICES.

Materials.	Jan. 1, 1927.	Jan. 1, 1928.	Rise.	Fall.
	£ s. d.	£ s. d.	%	%
Bricks—				
Best Stocks	4 5 6	4 5 6	—	—
Flettons	2 13 3	2 14 3	—	—
Glazed	21 0 0	21 0 0	—	—
Thames Ballast	0 10 6	0 10 6	—	—
Thames Sand	0 14 6	0 14 6	—	—
Shingle (¾ in.)	0 12 9	0 12 9	—	—
Portland Cement	2 18 0	2 13 0	—	8.63
Ground Blue Lias Lime	2 3 6	1 17 6	—	13.79
Grey Stone Lime	2 10 9	2 10 9	—	—
Bath Stone	0 2 9½	0 2 10	1.49	—
Portland Stone	0 4 4	0 4 4½	0.96	—
Good Sound Building Timber—				
4 in. × 11 in.	28 0 0	30 0 0	7.14	—
3 in. × 11 in.	25 0 0	25 0 0	—	—
2 in. × 11 in.	25 0 0	26 0 0	4.00	—
3 in. × 9 in.	24 0 0	24 0 0	—	—
3 in. × 7 in.	20 0 0	22 0 0	10.00	—
3 in. × 4 in.	22 0 0	21 0 0	—	4.54
Slates—				
24 in. × 12 in.	32 18 4	32 18 4	—	—
22 in. × 12 in.	29 17 11	29 17 11	—	—
20 in. × 10 in.	22 10 0	22 10 0	—	—
16 in. × 10 in.	15 12 6	15 12 6	—	—
16 in. × 8 in.	12 3 9	12 3 9	—	—
R.S. Joists	12 10 0	12 10 0	—	—
Iron—				
Common Bars	13 0 0	13 0 0	—	—
Mild Steel Bars	10 0 0	10 0 0	—	—
Steel Bars	10 0 0	10 0 0	—	—
Cut Nails	19 0 0	19 0 0	—	—
Sheet Lead	39 10 0	31 0 0	—	21.52
Glass—				
15 oz. Sheet	0 0 3½	0 0 2¾	—	21.43
21 oz. Sheet	0 0 4½	0 0 4	—	11.11
26 oz. Sheet	0 0 5	0 0 4½	—	10.10
Raw Linseed Oil	0 3 1	0 3 1	—	—
Turpentine	0 5 0	0 3 10	—	23.33
Ground English White Lead	50 15 0	47 5 0	—	6.89
White Lead Paint	70 5 0	66 15 0	—	4.98
Red Lead	42 0 0	38 10 0	—	8.33

Committee having been appointed to co-ordinate the research required in the preparation of the specifications.

The specifications, after they have been tentatively completed by the drafting committees, are circulated to all interested organisations of both makers and users for their critical consideration and comment. At the same time they are also circulated to the standardising bodies in the Colonies, who are in close contact with the parent body in this country. In this connection it is of interest to note that the Australian Commonwealth Engineering Standards Association have recently formed a Paint and Varnish section, who have just issued specifications for linseed oil, turpentine, white spirit and genuine white lead. As is the case with all the publications of the Australian Engineering Standards Association, the specifications closely follow the British Standard Specifications, the only differences being where Australian climatic conditions have necessitated alterations. British products are bought in preference to the products of other countries, and the use of the British Standard Specifications will tend to consolidate that position. It has been estimated that the total capital value of the paint and varnish industry is something of the nature of £15,000,000, with an annual turnover of about £33,000,000, while the export trade alone in paints and varnishes is about 3,000,000 cwt.

LAW REPORT

Decorator's Claim for Monies.

In the Official Referees' Courts of the High Courts, Mr. E. W. Hansell, K.C., had before him an action brought by Mr. Thomas George Morris, trading as Morris and Co., builders, contractors and decorators, of 70, Teignmouth-road, N.W., against Mr. Samuel Rubenstein, claiming £130 11s., balance of the price of work done and materials supplied in the decoration of certain property belonging to the defendant. Mr. Rubenstein denied liability on the ground that he was bound only by his architect's certificate, and further pleading that certain of the work relating to the hanging of wallpaper was not done in a proper and efficient manner, in respect of which he counter-claimed.

Mr. J. P. Eddy appeared for the plaintiff, and Mr. S. Lincoln represented the defendant.

Mr. Eddy, in opening the plaintiff's case, said it was clear that the amount of the claim was owing to his clients, the decorators, for the work done, and really the only defence on which the defendant actually relied was that there was some defect in the hanging of a special wallpaper. The first specification was in the usual form as to the architect's certificate, but there was a second specification which was not at all of the same character and by which the first arrangement was withdrawn. The defendants were now submitting that the second contract embodied the old terms of the first, but the plaintiffs could not, and did not, from the time of the second arrangement being made, agree to this, and now said they were clearly entitled to be paid for the work done.

After hearing the evidence, the Referee decided that the plaintiffs were entitled to judgment for £125 11s. 10d., with costs, and on the counter-claim in respect of the alleged defective wallpaper with costs.

Open-Air School, Crumpsall.

The Manchester City Council is considering an application which the Education Committee propose should be made to the Ministry of Health for sanction to borrow £33,348 for the erection and furnishing of an open-air day special school at Crumpsall, for the purchase of land adjoining Whalley Range High School for Girls, and for the improvement of the heating system of the Municipal School of Art.

NEW BUILDINGS IN LONDON

Brixton.—RECONSTRUCTION.—The property adjoining the drapery emporium in Brixton-road, S.W., of Messrs. Morley & Lanceley, Ltd., has been acquired by them for reconstruction as additional showrooms. The company's architects are Messrs. North, Robin & Wilsdon, 35-39, Maddox-street, W.1.

Camberwell. — CHURCH. — Work has just started upon the building of a new church, dedicated to St. Anthony of Tabus, on a site in Lordship-lane, S.E., the builders being Messrs. Goddard & Son, of Dorking and Farnham. The plans have been prepared by Mr. J. Goldie, 7, Victoria-street, S.W.1.

Charing Cross. — RECONDITIONING. — The Grand Hotel, Charing Cross, has been purchased by a new company which has just been formed. The premises are to be reconditioned to the plans prepared by Messrs. M. E. & O. H. Collins, architects, 115, Old Broad-street, E.C.

Duke-street.—PREMISES. — A new public-house, the "Devonshire Arms," with offices on the upper floors, is to be built in Duke-street, W.1, by Messrs. Hoare & Co., Ltd., St. Katherine's-way, E.1. The builders are Messrs. Vigor & Co. (Poplar), Ltd., 15, King-street, E.14. The architect is Mr. J. E. Jefferson, A.R.I.B.A.

Edmonton.—EXTENSIONS.—The Edmonton Urban District Council are to extend their Central Library. Application has been made to the Ministry for sanction to the borrowing of £10,000 for the scheme.

Fulham-road.—EXTENSIONS.—The proposed extensions to the Cancer Free Hospital, Fulham-road, S.W., are estimated to cost £150,000. Plans have been prepared by Mr. T. A. Pole, 10, Gray's Inn-square, W.C.1.

Great Russell-street. — CLUB. — Messrs. Greenham, of Isleworth, have started demolishing premises in Great Russell-street, W.C.1, to make room for the new Y.W.C.A. club which is to be erected on the site.

Hackney.—BANK.—Large branch premises are to be erected in Hackney-road, E. 2, for the Midland Bank, Ltd. The work is under the direction of Messrs. Elcock & Sutcliffe, 21, Northumberland-avenue, W.C. 2.

Hampstead.—CONVERSION.—The proposal of the Dalcroze Society of Eurhythmics to purchase the Hampstead Conservatoire has fallen through, the building having been purchased by Mr. H. Jay, of the Kingsway Theatre, W.C. Plans for its conversion into a theatre are to be shortly considered.

Hendon. — ADAPTATION. — The Safetex Safety Glass Co., Ltd., 103, Cannon-street, E.C. 4, has acquired a factory in Edgware-road which is to be adapted.

Islington. — RECONSTRUCTION. — The old town hall in Upper-street, W.1, is to be extensively reconstructed and opened as a picture theatre, with seating for 1,300 people. Plans are being prepared by Messrs. Gray & Webb, 18, Baker-street, W.1.

Lower Regent-street.—ALTERATIONS.—The Midland Bank, Ltd., have acquired ground-floor premises in Dorland House, which are to be converted into branch offices.

Marylebone.—HOUSING.—We understand that the L.C.C. have arranged, on behalf of the Marylebone Borough Council, to carry out an area reconstruction scheme, estimated to cost £1,250,000, and providing re-housing for about 3,000 people.

Mile End.—ENLARGEMENT.—The committee of the Stepney Hospital in Bancroft-road, E.1, have decided to enlarge the mortuary and to provide post-mortem and viewing rooms. The architect is Mr. E. S. Ruthin, A.R.I.B.A., 33, Great James-street, Bedford-row, W.C.

Mitcham.—HOSPITAL. — A start has been made on the new Wilson Cottage Hospital, which will provide accommodation for 30 beds, costing £25,000. The architects are Messrs. Chart, Son & Reading, of Croydon, whilst the contract has been placed with Mr. S. Dale, London-road, Mitcham

Moorfields.—RECONSTRUCTION.—The governors of the City of London College, Moorfields, E.C. 2, have acquired adjoining premises, which are to be reconstructed as classrooms, etc., at a cost of £10,000. The work will be supervised by Mr. F. S. Hammond, Cripplegate Institute, Golden-lane, E.C.2.

New Bond-street.—CONVERSION.—The lease of 64, New Bond-street, W.1, has been sold to the Royal Bank of Scotland, Ltd., Edinburgh. The premises are to be converted into branch offices.

New Oxford-street.—REBUILDING.—Messrs. Gunton & Gunton, FF.R.I.B.A., of Empire House, St. Martin's-le-Grand, E.C.2, have prepared the plans for the rebuilding of the premises of Messrs. Henry Glave, Ltd., New Oxford-street, W.C.1.

Paddington. — RECONSTRUCTION. — The "Load of Hay" public-house in Praed-street, W.2, is to be reconstructed by Messrs. Watney, Combe, Reid & Co., Ltd., and a large number of bedrooms added. The builders are Messrs. Patman & Fotheringham, Ltd., 15, Park-street, Islington, N. The architects are Messrs. Thompson & Walford, FF.R.I.B.A., Leadenhall-buildings, E.C.3.

Portman-square. — FLATS. — Messrs. H. J. Greenham, Ltd., Isleworth, are clearing a site in Portman-square and Orchard-street, W.1, where it is proposed to build a large block of flats. The plans have been prepared by Messrs. Joseph, architects, 2, Paul's Bakehouse-court, E.C.4.

Queen Victoria-street.—MODERNISING.—The Underground Company have announced their intention to rebuild the front of the Mansion House Station.

Regent's Park-road.—THEATRE.—The English Folk Dance Society, 107, Great Russell-street, W.C.1, have purchased a site in Regents Park-road and Gloucester-road, N.W., where it is proposed to build new headquarters, including a theatre.

Richmond.—CLINIC.—Quantities are to be issued shortly for the erection of a new clinic block at the Royal Richmond Hospital. The architects are Messrs. Brewer, Smith & Brewer, 11, The Green, Richmond.

Richmond.—HALL.—The contract for the erection of the proposed Oddfellows' Hall in Parkshot has been placed with Messrs. Eldridge & Son, Ormond-road, Richmond, and work will be started at once. The architect is Mr. E. J. Partridge, F.R.I.B.A., Bank-chambers, George-street.

Richmond.—HALL.—A lounge, with concert hall, etc., is to be added to the Station Hotel in Kew-road by Messrs. Hoare & Co., Ltd., Red Lion Brewery, St. Katherine's-way, E.1, to the plans of their architect, Mr. J. E. Jefferson, A.R.I.B.A. The contract has been let to Messrs. L. & W. Whitehead, Ltd., Portland Works, Portland-place North, S.W.8.

Richmond.—OFFICES.—Messrs. W. H. Gaze & Son, Ltd., High-street, Kingston-on-Thames, have secured the contract for the erection of large works and offices in Kingston-road, for Messrs. Cellon, Ltd. Plans have been prepared by Messrs. Bishop & Etherington-Smith, 30, Duke-street, S.W.1.

Richmond.—SHOP.—A new shop and store-rooms are to be erected at 5, George-street, to plans prepared by Messrs. Leighton & Higgs, 9, St. Thomas's-street, S.E.1. The contract has been placed with Messrs. J. R. Offer & Son, 8, Church-street, Kingston-on-Thames.

Seagrave-road.—ADDITIONS.—The Metropolitan Asylums Board has approved the plans prepared by their Chief Engineer for the building of a new nurses' block at the Western Hospital, Seagrave-road, Fulham, to increase the accommodation so as to provide for 199 nurses and 116 servants.

Southgate. — BUILDING. — A new public-house is to built in Wolves-lane, N.12, to be called the "Bird in Hand." The builders are Messrs. T. H. Adamson & Sons, 145, High-street, Putney, S.W., and the architect is Mr. Nowell Parr, 42, Cranley-gardens, S.W.7.

RATES OF WAGES IN THE BUILDING TRADE

[Every endeavour is made to ensure accuracy but we cannot be responsible for errors.]

	Masons	Bricklayers.	Carpenters Joiners	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers.
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Alfreton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Alnwick	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ashford (Kent)	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Ashington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Aylesbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Aylsham	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Banbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barnstaple	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Basingstoke	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Bath	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bedford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Berwick	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bexhill	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Birkenhead	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Birmingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bournemouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bradford-on-Avon	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Braintree	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Brentwood	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bridgwater	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Bridlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Brighton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bromsgrove	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Bromyard	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Bungay	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burton-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Buxton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Cambridge	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Canterbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Carlisle	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chatham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Chelmsford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Cheltenham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chorley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cirencester	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/1
Clacton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Colchester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cranbrook	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Cromer	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Deal	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Denbigh	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Devizes	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Dewsbury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dorchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Dorking	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Dovercourt	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Driffield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Droitwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Dudley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2⅝
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Eastbourne	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
E. Glam. (Mon. Val.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ely	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Exeter	1/7	1/7	1/7	1/7	1/7	1/7	1/6	1/2½
Exmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Fakenham	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Felixstowe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Folkestone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Frome	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Glossop	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Gloucester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Godalming	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Goole	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Gosport	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Great Yarmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Guildford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harpenden	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harwich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Hastings	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hatfield	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hednesford	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Hereford	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Herne Bay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hertford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hitchin	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Hoddesdon	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Holt	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hunstanton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Huntingdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Isle of Wight	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Ipswich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Keighley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Kettering	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Kidderminster	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
King's Lynn	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leamington Spa	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leighton Buzzard	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Littlehampton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Liverpool	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Llandudno	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
London:								
12 m. radius	1/9½	1/9½	1/9½	1/9½	1/9½	1/9½	1/8½	1/4½
12–15 m. radius	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Lowestoft	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Luton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Macclesfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Maidstone	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Malvern	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Margate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Market Harb'rough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Matlock	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Melton Constable	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Melton Mowbray	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newark	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Newbury	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newcastle-ur-Lyme	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
New Forest	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Newmarket	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Nuneaton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oakham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oxford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Paignton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Peterborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Plymouth	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3½
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Portsmouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ramsgate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Reading	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Redcar	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Redditch	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Reigate	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Retford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Ripon	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Rochester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Rugby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Saffron Walden	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
St. Albans	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
St. Helens	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Sawbridgeworth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Saxmundham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Scarborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sevenoaks	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Sittingbourne	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Southampton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Southend-on-Sea	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stevenage	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stourbridge	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Stourport	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Stowmarket	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Stratford-on-Avon	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stroud	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5	1/1½
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swaffham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swindon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Tamworth	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Taunton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Thetford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Torquay	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Totnes	1/5	1/5	1/5	1/5	1/5	1/5	1/4½	1/1
Trowbridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Tunbridge Wells	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Uttoxeter	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Walsall	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Wallsend	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Warminster	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Warwick	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wells (Norfolk)	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Welwyn. Gar. City	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Weston-sup.-Mare	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Weymouth	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/1
Whitby	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Winchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Windsor	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Wisbech	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Woodbridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Worksop	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Worthing	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Wrexham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Wroxham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Wymondham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
York	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½

For rates of wages in the Building Trade in Scotland, see page 121.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in: the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING ETC.

Jan. 14.—**Cardiff.**—Painting.—Exterior of houses on Mynachdy housing scheme, for T.C. City Architect.

Jan. 14.—**Chorley.**—Painting.—Inside and decorating of cottages numbered 13 and 15, Pall Mall, and 3, 5, 7, 9 and 11, James-st., for T.C. B.S.

Jan. 14.—**Rawmarsh.**—Conveniences.—In Aldwarke-rd., Parkgate, including 5 w.c.s, 9-stall urinal and external urinal, for U.D.C. J. A. Tonge, architect, Parkgate. Dep. £1 1s.

Jan. 16.—**Acton and Hayes.**—Houses and Sewers.—Erection of a further 52 at Acton, with roads and sewers, and 50 at Hayes, for the Great Western (London) Garden Village Society, Ltd. T. Alwyn Lloyd, F.R.I.B.A., 6, Cathedral-rd., Cardiff. Dep. £3 3s.

Jan 16.—**Bolton.**—Houses, 4 pairs, on Moorfield estate, for C.B. Samuel Parker, T.C. Dep. £2 2s.

Jan. 16.—**Burnley.**—House.—Doctor's house, at Sanatorium, for C.B. B.E. and S.

Jan. 16.—**Cardiff.**—Painting.—Also renovating, etc., at City Hall, for T.C. G. H. Whitaker, City Engineer and Architect.

Jan. 16. — **Essex.** — Section Headquarters. — Erection of, in Corringham-rd., Stanford-le-Hope, for the Essex Territorial Association. The Secretary, Market-rd., Chelmsford. Dep. £2 2s.

Jan. 16.—**Halifax.**—Houses.—6, at East-st., Lightcliffe, G. R. Oddy, chartered architect, Ward's End-chambers.

Jan. 16.—**Hertfordshire.**—School.—Erection and completion of a new County Council Elementary School (to accommodate 402 scholars), for the Hertfordshire C.C. County Surveyor's Office, Hatfield, Herts. Dep. £1 1s

Jan. 16.—**Holmfirth.**—Houses.—24, on Woodlands housing estate, for U.D.C. S. Dep. £1 1s.

Jan. 16.—**Horden.**—Wall.—530 yds. of dwarf walling and providing and erection of palisading on Horden Colliery Wall, for Miners' Welfare Committee. W. Johnson, Engineer, Horden Colliery.

Jan. 16.—**Leeds.**—Building.—Erection of, for Mining Dept., for the Council of the Leeds University. The Registrar, The University, Leeds. Dep. £2 2s.

Jan. 16.—**Newton Abbot.**—Extensions.—Also alteration to Highweek Junior Council School for Devon E.C. C.A., 97, Heavitree-rd., Exeter. Dep. £1 1s.

Jan. 16.—**Plymouth.**—Demolition.—Of 1 and 2, Oak-villas, Nos. 1, 4 and 8, West Ham-terr., Wolseley-rd., and Nos. 1, 2 and 3, Coburg-st., and Nos. 14/15, Saltash-st., for C.B. J. Wibberley, Borough Engineer, Surveyor and Architect. Dep. £1 1s.

Jan. 16.—**Rochford.**—Lavatory.—Accommodation at poor law institution, for B.G. W. H. Roberts, C., 27, Victoria-av., Southend-on-Sea.

Jan. 16.—**Sandwich.**—Heating.—Extensions to existing heating system at Town Hall, for T.C. Wm. C. Moultrie, Acting Borough Surveyor. Dep. £2.

Jan. 16.—**Stockport.**—House.—Battery house and garages in reinforced concrete and brickwork, Corporation-st., for Electricity Committee. H. Hamer, B.S.

Jan. 16.—**Willenhall.**—Houses.—120 non-parlour type, on Albion-rd. site, for U.D.C. G. A. Waite, B.S. Dep. £2 2s.

Jan. 16.—**York.**—Balcony.—Outside wards No. 23, 27 and 28 of York City and District Infirmary, 75, Huntington-rd., for B.G. Sykes, Clerk, Museum-st.

Jan. 16.—**York.**—Houses.—14 in Glen-av., and 36 adjoining Tang Hall-lane, for T.C. F. W. Spurr, City E. Dep. £2 2s.

Jan. 17.—**Ballingry.**—Additions.—To school, for Fife Education Authority. G. Sandilands, Master of Works, Education Offices, Kirkcaldy. Dep. £1 1s.

Jan. 17.—**Bolton.**—Alterations.—To interior of Mental Block at Fishpool Institution, Farnworth, for B.G. J. Ward, architect, 24, Mawdsley-st.

Jan. 17.—**Buckfastleigh.**—Houses.—26, on site adjoining the Plymouth-rd., for U.D.C. Peiter & Warren, FF.R.I.B.A., chartered architects, Old Sarum, Yeovil.

Jan. 17.—**Dublin.**—Buildings.—At 45, Upper O'Connell-st., for Commissioners of Public Works. T. Cassedy, secretary. Dep. £1.

Jan. 17.—**Dublin.**—Reconstruction.—Of north block of Four Courts, for Commissioners of Public Works, Dublin. T. Cassedy, secretary. Dep. £1.

Jan. 17.—**Easington.**—Builder Work.—In connection with installation of a heating scheme at Poor Law Institution, for B.G. F. W. Girven, architect.

Jan. 17.—**East and West Flegg.**—Houses.—3 pairs of non-parlour, in parish of Caister East, for R.D.C. R. Gournay Ferrier, C., 16, South Quay, Gt. Yarmouth. Dep. 10s. 6d.

Jan. 17.—**Flint.**—Houses.—38, for T.C. W. B. Edwards, A.R.I.B.A., 84, Church-st. Dep. £3 3s.

Jan. 17.—**Foleshill.**—Houses.—14, in Keresley, for R.D.C. A. H. Newey, E. and S. Dep. £2 2s.

Jan. 17.—**Fulham.**—Boundary Wall.—Pulling down and re-erection of a brick and stone boundary wall of North Sheen Cemetery to Mortlake, for the B.C. A. F. Holden, M.I.C.E., B.S., Town Hall, Fulham, S.W.6.

Jan. 17.—**Leeds.**—School.—Boys' and girls' departments, at Meanwood Council school, for E.C. J. Graham, Director of Education.

Jan. 17.—**Stocksbridge.**—Houses.—20, at Deepcar, for U.D.C. H. M. Aitchison, A. and S.

Jan. 18.—**Camborne.**—Houses.—12 non-parlour, for U.D.C. S.

Jan. 18.—**Falmouth.**—Houses.—146, at Penwerris, for T.C. H. E. Tresidder, B.S.

Jan. 18.—**Morley.**—Alterations.—To cottages, etc., at Morley Hall Maternity Home, for T.C. B.E.

Jan. 18. — **Portadown.** — Reconstruction. — Of Shambles, William-st., Portadown, for U.D.C. R. Ferguson & S. M'Ilveen, architects, 38, Scottish Provident-buildings, Belfast. Dep. £2 2s.

Jan. 18.—**Whitby.**—Showrooms.—Gas showrooms and offices in Flowergate, Whitby, for Whitby Gas Co. A. E. Young, architect and surveyor, 77, Baxtergate.

Jan. 19.—**Aberdeen.**—School Gardening Demonstration Building.—At Hilton, Aberdeen, for National Committee for Training of Teachers. J. A. O. Allan, F.R.I.B.A., 25, Union-ter., Aberdeen.

Jan. 19.—**Birmingham.**—Telephone Exchange.—Erection of, at Aldridge, for the Commissioners H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 19.—**Connah's Quay.**—Telephone Exchange.—Erection of, at Connah's Quay, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 19.—**Glasgow.**—Houses.—60, at Crossloan-rd., for T.C. D. Stenhouse, T.C.

Jan. 19.—**Greenock.**—Plastering.—Of 36 houses, at Port Glasgow-rd., for Corporation. Andrew Nimmo, T.C.

Jan. 19.—**Kendal.**—Cottages.—100, at Skating Rink-field, for T.C. F. W. Oxberry, B.S. Dep. £1 1s.

Jan. 19.—**Manchester.**—Building.—(1) 3 small sets of conveniences at Broadhurst Park; (2) additions to bowl-house at Openshaw (George-st.) recreation ground; and (3) additions to bowl-house at Clayton Hall recreation ground, for T.C. City Architect. Dep. 10s. 6d.

Jan. 19.—**Manchester.**—Railings.—Supplying and fixing of wrought iron railings and gates at Levenshulme Municipal High School for Girls, for E.C. P. M. Heath, T.C.

Jan. 20.—**Altrincham.**—Houses.—14 type "B" on Oldfield Brow housing estate, for U.D.C. H. E. Brown, S. Dep. £2 2s.

Jan. 20.—**Atherton.**—Employment Exchange.—Erection of, at Atherton, Lancs, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 20.—**Colbeck (Sligo).**—School.—National School at Colbeck, Co. Sligo. J. Curley, P.P., manager, Riverstown.

Jan. 20.—**Eastleigh.**—Public Hall.—Erection of, for the Eastleigh and Bishopstoke U.D.C. W. Wallace Gandy, E. and S. to the Council, Council Offices, Eastleigh. Dep. £2 2s.

Jan. 20.—**Falcarragh.**—Extensions.—To Ballyconnell House, for Commissioners of Public Works. T. Cassedy, secretary, Dublin. Dep. £1.

Jan. 20.—**London.**—Wall.—Embankment and river wall, about 565 feet in length, in Thames in front of Grosvenor-rd., on the upstream side of Lambeth Bridge, for L.C.C. Chief Engineer, Old County Hall, Spring Gardens, S.W.1. Dep. £5.

Jan. 20.—**Loughton.**—Post Office and Telephone Exchange.—Erection of, at Loughton, Essex, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 20.—**Retford.**—Heating.—Installation of heating, hot water and fire services at Rampton State Institution, for H.M.O.W. Contracts Branch, H.M. Office of Works, King Charles-st., S.W.1. Dep. £1 1s.

Jan. 20.—**Spalding.**—Houses.—20 parlour type and 32 non-parlour type, for U.D.C. A. E. Palmer, architect, Fulney Bridge. Dep. £1 1s.

Jan. 21.—**Adwick-le-Street.**—Houses.—80, at Parklane and Chestnut-av., Skellow, for U.D.C. S. Dep. £2.

Jan. 21.—**Braintree.**—Houses.—Erection of 28 on the Cressing-rd. No. 3 site, for the U.D.C. Architect, D. G. Armstrong, F.I.A.A., Great-sq., Braintree.

Jan. 21. — **Buckfastleigh.**—Convenience.—Public convenience in Plymouth-rd., for U.D.C. Surveyor.

Jan. 21.—**Hereford.**—Baths.—Public baths in Edgar-st., for T.C. City S. Dep. £2 2s.

Jan. 21.—**Ipswich.**—Repairs.—To school buildings for either 1, 2 or 3 years, for E.C. E. T. Johns, F.R.I.B.A., 8, Lower Brook-st.

Jan. 21.—**Leicester.**—Extensions.—To Central Generating Station, for T.C. T. R. Smith, City Electrical Engineer, Market-st. Dep. £5.

Jan. 21.—**Stepney.**—Stores, etc.—Contracts for one year from April 1, 1928, for the B.C. Borough Engineer and Surveyor and the Town Clerk, Municipal Offices, Raine-st., Old Gravel-lane, E.1. Dep. £1 Treasury note in respect of each tender.

Jan. 23.—**Batley.**—Houses.—30, on housing estate, off Bradford-rd., W., for T.C. H. L. Hall, B.E. and S., Brunswick-st.

Jan. 23. — **Cambridge.** — New workshops and caretaker's house at the Central Schools, for the Corporation. Borough Engineer and Surveyor, The Guildhall, Cambridge. Dep. £2.

Jan. 23.—**Edinburgh.**—Painting.—At Home 20, Bangour Mental Hospital, for District Board of Control. W. M. Mowat, clerk, Castle-ter.

Jan. 23.—**Rathdrum.**—Convent.—At County Home, Rathdrum, for Wicklow County Board of Health and Public Assistance. Jones & Kelly, architects, 17, South Frederick-st., Dublin.

Jan. 23.—**Staines.**—Houses.—Erection of 22 at Walton-lane, Shepperton, for the R.D.C. D. C. Fidler, surveyor, London-rd., Ashford, Middlesex. Dep. £2 2s.

Jan. 23.—**Urmston.**—Houses.—48 type "A," at Granville-rd., for U.D.C. J. Heath, S. Dep. £2 2s.

Jan. 23.—**Whitehaven.**—Houses.—Erection and completion of 54 houses, for the Town Council. Borough Engineer and Surveyor, Town Hall, Whitehaven. Dep. £1 1s.

Jan. 24.—**Glin.**—Electric Lighting.—Installation in St. Joseph's Orphanage, Glin, County Limerick, for Committee. McEntee and O'Kelly, Consulting Engineers, 23, Upper O'Connell-st., Dublin. Dep. £2 2s.

Jan. 24.—**Islington.**—Demolition and Removal.—Offers invited Nos. 5, 6 and 7, Tyndale-pl., Upper-st., N.1, and for entire clearance of site and erection of hoarding to enclose the same for the Borough Council. E. C. P. Monson, F.R.I.B.A., Finsbury Pavement House, 120, Moorgate, E.C.2.

Jan. 24.—**Macclesfield.**—Additions.—Also alterations to farm buildings at Parkside Mental Hospital, for Chester C.C. F. Anstead Browne, F.R.I.B.A., C.A., Newgate-st., Chester. Dep. £1 1s.

Jan. 24.—**Southall-Norwood.**—Installation.—Electric wiring installation at the Sanatorium, Mount Pleasant, Southall, for U.D.C. J. B. Thomson, E. and S. Dep. £2 2s.

Jan. 25.—**Birmingham.**—Heating.—Installation of heating apparatus in block 10 at Dudley-rd. Hospital, for B.G. Noel W. Greenway, Consulting Engineer, Lloyds Bank-chambers, New-st. Dep. £2 2s.

✱Jan. 25.—**Chelsea.**—Articles and Works.—Supply and execution of, from April 1 next to March 31, 1929, unless otherwise stated, for Chelsea Borough Council. W. R. Manning, B.S., Town Hall, King's-rd., Chelsea, S.W.3.

Jan. 25.—**Clydebank.**—Houses.—32 flatted 3-roomed houses in blocks of 4 at Whitecrook housing site, for T.C. B.S. Dep. £2 2s.

Jan. 25.—**Coulsdon and Purley.**—Store.—Convenience and store at Rotary Field, Brighton-rd., Purley, for U.D.C. G. A. Ballard, S. Dep. £1 1s.

✱Jan. 25.—**Dawlish.**—Houses.—Erection of 22 in blocks of 10 and 12, with the necessary roads, sewers and water mains, for the U.D.C. S. F. C. Churchward, Engineer and Surveyor, Council Offices, Dawlish. Dep. £3 3s.

Jan. 25.—**Dunmow.**—Building.—Engine house and machinery, together with appurtenant work, at pumping station, for R.D.C. Sands & Walker, engineers, Milton-chambers, Milton-st., Nottingham. Dep. £1 1s.

Jan. 25.—**Sligo.**—Garages.—Range of 6 garages at Station Hotel, for Gt. Southern Rlys. Chief Engineer, Broadstone Station, Dublin. Dep. £1 1s.

Jan. 26.—**Hove.**—Houses.—Erection of 100 on the housing estate at The Knoll, Old Shoreham-rd., Hove, for the Borough Council. Borough Surveyor's Office, Town Hall, Hove. Dep. £3 3s.

Jan. 27.—**Manchester.**—Telephone Exchange.—Erection of extensions to Trafford Park Telephone Exchange, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 27.—**Redhill.**—Sorting Office.—Erection of an extension to Redhill Station Sorting Office, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., Westminster, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 28.—**Devon.**—Alterations.—At Police Station, Bideford; Police Constable's House, Swimbridge, Barnstaple, for Devon C.C. C.A., 97, Heavitree-rd., Exeter.

Jan. 30.—**Dartford, Kent.**—Reconstruction.—Of Long Reach Smallpox Hospital, Dartford, for the Metropolitan Asylums Board. Office of the Board, Victoria Embankment, E.C.4. Dep. £5.

Jan. 30.—**Hants.**—Alterations and Additions.—To the present Post Office and Telephone Exchange at Petersfield, for the Commissioners, H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 30.—**Hull.**—Alterations and Extensions.—To the Head Post Office, Hull, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., Westminster, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Jan. 30.—**Walsall.**—New Infant School.—Erection of, in Blakenall-lane, Leamore, Walsall, for the Borough Council. J. Taylor, M.Inst.C.E. B.S., Council House, Walsall. Dep. £3 3s.

Jan. 31.—**Barnsley.**—Extensions.—To Barnsley and District Holgate Grammar School. Shaw-lane. Dyson, Cawthorne & Coles, architects, 10, Regent-st.

Jan. 31.—**Bethnal Green.**—Chapel.—Erection of, in the grounds of Bethnal Green Hospital, Cambridge-rd., London, E.2, for the Guardians. The Clerk, Guardians' Administrative Offices, Bishop's-rd, E.2. Dep. £1.

Jan. 31.—**Dublin.**—Reconstruction.—Of North block of Four Courts, for Commissioners of Public Works. T. Cassedy, secretary, Dublin. Dep. £1.

Jan. 31.—**Milltown.**—Houses.—58, for Irish Sailors and Soldiers Land Trust. Chief Clerk, 30, Lower Fitzwilliam-st., Dublin. Dep. £5 5s.

Jan. 31.—**Nenagh.**—Houses.—26, at O'Growney-st., for U.D.C. O. L. D. Gill, engineer.

Feb. 1.—**Woolpit.**—House.—Teacher's house on a site adjoining Woolpit Council school, for West Suffolk E.C. A. Ainsworth Hunt, C.A., 51a, Abbeygate-st., Bury St. Edmunds.

Feb. 2.—**Southampton.**—Manual Instruction and Cookery Room.—Erection of, at Farnborough Queen's-rd. Council school, for the County Council. A. L. Roberts, County Architect, The Castle, Winchester. Dep. £1 1s. by cheque payable to the Hants County Council, and crossed "Lloyds Bank, Ltd., Winchester," or particulars will not be sent.

*Feb. 6.—**Horsham.**—Houses.—Erection of 72 on the Millthorpe estate, Littlehaven-lane, Roffey, for the U.D.C. C. G. Atkinson, Council's Surveyor, Town Hall-chambers, Horsham. Dep. £3 3s.

*Feb. 10.—**Whitby.**—Theatre Alterations.—Alterations and additions to the Spa Theatre, including the construction of a balcony for the U.D.C. J. R. Seward, Assoc.M.Inst.C.E., M.Inst.M.&Cy.E., Engineer and Surveyor, Council Offices, Whitby. Dep. £2 2s.

——.—**Altrincham.**—Extension.—To the Sunday School buildings, Bank-st., for Wesleyan Church Committee. T. Harold Hill, A.R.I.B.A., 19, Kingsway, Altrincham. Dep. £1 1s.

——.—**Bewdley.**—Houses.—30, also sewering, for T.C. Gething & Rolley, A.R.I.B.A., architects and surveyors, Kingsley Hall, Kidderminster.

——.—**Barry.**—Shops.—12, with boarding house, hall and flats over, at Friars-rd., Barry Island, Glam., for the Esplanade Property Co., Ltd. F. S. Swash, F.R.I.B.A., architect and surveyor, Ridgeway, Newport, Mon. Dep. £2 2s.

——.—**Hambridge.**—School.—For Somersetshire C.C. A. J. Toomer, C.A., Lloyds Bank-chambers, Weston-super-Mare. Dep. £2 2s.

——.—**Horbury.**—Cinema.—For Co-operative Society, Ltd. W. Sugars, architect and surveyor.

——.—**Ludlow.**—Additions.—Also alterations to Grammar School, for Governors. B. Widdows, architect, St. James'-chambers, Derby.

——.—**Seaton.**—Pavilion.—In Seafield, for U.D.C. J. Ford, A.R.I.B.A., architect and surveyor.

——.—**Wickersley.**—Extension.—Walls in connection with the churchyard extension. Rector

——.—**Wisbech.**—Alterations.—Also additions to premises in Chapel-rd., for R. W. Maxey. F. Burdett Ward, L.R.I.B.A., 8, South Brink.

——.—**Yardley.**—Houses.—2, Yardley Wood-rd., for disabled ex-Service men. A. Lloyd Thomas & Douglas Wood, architects, 35, Craven-st., Strand, W.C.2.

MATERIALS, ETC.

Jan. 14.—**Reigate.**—Highway Materials.—For R.D.C. W. J. Hatton, S.

Jan. 16.—**Chorley.**—Road Materials.—For R.D.C. W. Cotterill, S.

Jan. 16.—**London.**—Builders' Materials.—For Camberwell B.C. W. Bell, B.E. and S.

Jan. 16.—**Plymouth.**—Granite Kerb.—For C.B. J. Wibberley, A.M.Inst.C.E., Borough Engineer, Surveyor and Architect.

Jan. 19.—**Bradford.**—Highway Materials.—For T.C. E. J. Sutcliffe, Gas. E.

Jan. 21.—**Easthampstead.**—Highways Materials.—For R.D.C. S.

Jan. 21.—**London.**—Builder's Materials.—For Stepney B.C. B. J. Belsher, F.R.I.B.A., B.E. and S.

Jan. 21.—**Stockbridge.**—Limestone, etc.—For R.D.C. S. F. Warren, District Surveyor.

Jan. 21.—**West Riding.**—Road Materials.—For C.C. C.S., Wakefield.

Jan. 23.—**Devon.**—Highway Materials.—For C.C. F. E. Simpson, C.S., No. 2 Division, 21, Southernhay West, Exeter.

Jan. 23.—**Essex.**—Highways Materials.—For C.C. Wm. H. Morgan, C.S.

Jan. 23.—**Friern Barnet.**—Granite Chippings.—For U.D.C. J. M. Gameson, E. and S.

Jan. 23.—**Uckfield.**—Highway Materials.—For R.D.C. E. W. Ray-Johnson, Highway S.

Jan. 24.—**Southall-Norwood.**—Highway Materials.—For U.D.C. J. B. Thomson, E. and S.

Jan. 24.—**Willesden.**—Highway Materials.—For U.D.C. F. Wilkinson, E.

Jan. 26.—**Liverpool.**—Stoneware, etc.—For T.C. W. Moon, T.C.

Jan. 30.—**West Suffolk.**—Highway Materials.—For C.C. E. H. Bond, C.S.

Jan. 31.—**Canterbury.**—Road Materials.—For T.C. P. H. Warwick, City S.

Jan. 31.—**Durham.**—Road Materials.—For C.C. W. J. Merrett, C.E. and S., 43, Old Elvet, Durham.

Jan. 31.—**Isle of Wight.**—Granite.—For C.C. A. J. A. Harris, Highways S.

Feb. 1.—**Amersham.**—Road Materials.—For R.D.C. A. H. Prince, District Surveyor, High-st.

Feb. 1.—**Chingford.**—Road Materials.—For U.D.C. E. and S.

Feb. 8.—**Middlesex.**—Road Materials.—For C.C. A. Dryland, C.E.

Feb. 9.—**Johannesburg.**—Tar.—2,600 tons of tar or tar substitute, for T.C. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Reference No. BX. 4121.)

Feb. 21.—**Tottenham.**—Road Materials.—For U.D.C. E. Townson, C.

——.—**Perth.**—Highway Materials.—For C.C. W. J. N. Bryce, District Road Surveyor, Road Surveyor's Office, Feus-rd., Perth.

ENGINEERING, IRON AND STEEL.

Jan. 14.—**Stourport.**—Rebuilding Mitton-st. canal bridge, for U.D.C. B. C. Hammond, engineer, 30, Foregate-st., Worcester.

Jan. 20.—**London.**—Steelwork.—For bridges, for South Indian Railway Co., Ltd. Robert White & Partners, consulting engineers, 3, Victoria-st., S.W.1.

Jan. 21.—**Rawmarsh.**—Drainage.—Laying of about 33 lin. yds., of 24-in. pipes, 694 lin. yds. of 18-in. pipes, and about 669 lin. yds. of 9-in. pipes, the building of 40 manholes, the fixing of 11 new gullies, disconnecting of existing house drainage and connecting to new sewers, erection of ventilation shafts, and incidental works, at South Ward, for U.D.C. J. A. Tonge, E. Dep. £2 2s.

Jan. 23.—**Burnley.**—Steelwork.—For footbridges over L.M. and S. Rly., at (1) Peace-st. to Livingstone-st., and (2) Cornwall-terr. to Cavalry-st., for C.B. B.E. and S.

Jan. 23.—**Wirral.**—Reservoir.—Covered concrete service reservoir on top of hill at Heswall, in the Wirral Peninsula near the existing water tower of the Board, and comprising excavation and forming embankments, concrete, plain and reinforced, fixing of ironwork, etc., for West Cheshire Water Board. G. H. Hill & Sons (Manchester), Civil Engineers, 40, Kennedy-st., Manchester. Dep. £2 2s.

Jan. 24.—**Leeds.**—Bridge.—Underline bridge, with steel superstructure, between Ardsley and Beeston, to carry L. and N.E. Rly., over new Ring-rd., for Corporation. W. T. Lancashire, City Engineer. Dep. £3 3s.

Jan. 25.—**Axbridge.**—Sewage.—Additions and alterations to sewage disposal works and other works connected therewith, including building of screening chamber, open settlement tanks, storm water tank, collecting chamber, percolating filters, effluent drains, and fixing of screens, valves, cast-iron pipes, percolating distributors, etc., for R.D.C. Parker, Pearson & Ross Hooper, engineers, Chippenham. Dep. £5 5s.

Jan. 25.—**Dorking.**—Sewage Works.—Bacteria bed with sprinkler, dosing and humus tanks, etc., at North Holmwood sewage works, near Dorking, for R.D.C. G. Sawyer, Sanitary Surveyor, 14, South-st.

Jan. 25.—**Kirkby-in-Ashfield.**—Extensions.—4,933 yds. of 15-in., 12-in. and 9-in. concrete and stoneware pipe sewers, with manholes, taking up and relaying 400 yds. of 15-in. iron outfall sewer, and other appurtenant works, pumping station and pumping main, also extension of purification works, consisting of circular tank, two bacterial filters, humus tank, etc., for U.D.C. Elliott & Brown, Chartered Civil Engineers, Burton-buildings, Parliament-st., Nottingham. Dep. £3 3s.

Jan. 28.—**Arbroath.**—Repairs.—Extending waste weir, reconstruction of apron to overflow channel, and the extension of overflow steps in reinforced concrete at Glenogil reservoir, for T.C. B.E. Dep. £1 1s.

Jan. 30.—**Pwllheli.**—Walls.—Concrete walls, new screening chambers, outlet pipes and other improvements at Murcwymp and Glasfryn springs; providing, hauling, laying and jointing of about 2,000 yds. of 6-in. and 4-in. cast-iron spigot and Socket water pipes, together with all sluice valves, air valves, fittings, and other works connected therewith, for Corporation. C. F. Farrington, engineer, M.Inst.C.E., Trinity-sq., Llandudno. Dep. £3 3s.

Feb. 15.—**London.**—Steelwork.—790 tons structural steel work for ironfoundry, together with corrugated asbestos sheets, patent glazing with wired glass, galvd. C.I. piping and fencing pales, etc., etc., for Madras and Southern Mahratta Rly. Co. Directors, 25, Buckingham Palace-rd., S.W.1.

Feb. 23.—**Newry.**—Bridge.—Single-leaf steel swing bridge over canal at Godfrey Bridge, for U.D.C. C. Blaney, Town Surveyor. Dep. £1 1s.

ROAD, SEWERAGE, AND WATER WORKS.

Jan. 14.—**Moreton.**—Making-up.—Alexander-drive, Moreton, for Wirral R.D.C. S. H. Davies, Highways S. Dep. £1 1s.

Jan. 14.—**Newcastle-under-Lyne.**—Roads.—Also sewers on Hill Farm housing estate, for T.C. B.S. Dep. £2.

Jan. 14.—**Taunton.**—Sewers.—Roads and sewers on remainder of Lambrook-rd. housing site, in connection with erection of 128 concrete houses, for T.C. I. F. Shellard, B.E. and S.

Jan. 16.—**Arklow.**—Sewerage.—1,000 yds. lin. of 12-in. sewer and about 350 yds. lin. of 9-in. sewer, together with manholes, lampholes, junctions, and other works connected therewith, including supply of all materials at Ferrybank, for U.D.C. P. H. McCarthy, Civil Engineer, 26, Lower Leeson-st., Dublin. Dep. £2 2s.

Jan. 16.—**Beckenham.**—Road.—Reconstruction of Rectory-rd., for U.D.C. H. Storr Best, S. Dep. £2.

Jan. 16.—**Beddington and Wallington.**—Roads.—Road and sewers in connection with housing scheme at Bute-rd., estate, Wallington, for U.D.C. S. F. R. Carter, E. and S. Dep. £2 2s.

Jan. 16.—**East Barnet.**—Sewer.—For (*a*) Station-rd.: 163 yds. (about) 9-in. surface-water sewer; 187 yds. (about) 9-in. soil sewer; (*b*) Church Hill-rd.: 121 yds. (about) 9-in. surface-water sewer, for U.D.C. H. York, E. and S. Dep. £1 1s.

Jan. 16.—**Edmonton.**—Making-up.—Summerhill-grove, for U.D.C. Cuthbert Brown, E. and S. Dep. £2 2s.

Jan. 16.—Hebden Bridge.—Widening.—143 yds. lin. of main road at King-st., from Saville-rd. to Oakville-rd., and includes road construction and new retaining and fence walls, for U.D.C. H. L. Bottomley, E. and S.

Jan. 16.—**Loughborough.**—Main.—Providing and laying about 1½ miles of 15-in. spun cast-iron pipes from Nanpanton to Loughborough, for Corporation. G. & F. W. Hodson, Consulting Engineers, Bank-chambers. Dep. £5 5s.

Jan. 16.—**Ruislip-Northwood.**—Widening.—Also reconstruction of section of Pinner-Rickmansworth-rd., (A.404), between Joel-st. and the Hendon R.D.C. boundary, for U.D.C. H. R. Metcalfe, E. and S. Dep. £5.

Jan. 16.—**Southend-on-Sea.**—Making-up.—Also sewering of Marine-parade, Leigh, extension, and Thames-drive, Leigh, and incidental works, for C.B. R. H. Dyer, B.E. and S. Dep. £2.

Jan. 16.—**Southend-on-Sea.**—Sewers.—Construction of (*a*) approx. 2,500 yds. of 9-in. dia. and approx. 300 yds. of 12-in. dia. stoneware pipe sewers, and (*b*) small span concrete and steel bridge over brook, Pavilion-drive, and incidental works, for C.B. Robert H. Dyer, B.E. and S. Dep. £3.

Jan. 16.—**Waltham Holy Cross.**—Sewer.—Shallow 6-in. sewer from Upshire to the Wake Arms, about 1,980 yds. in length, for U.D.C. W. C. Holloway, E. and S.

Jan. 16.—**Worsborough.**—Making-up.—Portion of Hay Green-lane, Birdwell, for U.D.C. T. Shield, E. and S. Dep. £1 1s.

Jan. 17.—**Brighton.**—Mains.—9-in. and 6-in. stoneware pipe sewers, 4-in. cast-iron rising main (approximate length 340 yds.), erection of ejector plant, and other incidental works, at Mental Hospital, Haywards Heath, for C.B. D. Edwards, B.E. and S. Dep. £2 2s.

Jan. 17.—**Cardiff.**—Making-up.—Bettws-y-coed-rd., Pan-y-coed-rd., Llangorse-rd., Pantbach-av., Pantbach-place, Pantbach-lane East, Pantbach-lane North, Fairwater-grove Fairwater-lane, for T.C. City E.

Jan. 17.—**Highbridge.**—Improvements.—Diverting, widening, and resurfacing Highbridge and Burnham-on-Sea-rd., for U.D.C. E. J. McKaig, A.M.I.C.E., engineer, Weston-super-Mare. Dep. £2 2s.

Jan. 17.—**Sowerby.**—Making-up.—Vale-st., for U.D.C. J. Eastwood, S.

Jan. 18.—**Blackrock.**—Mains.—Laying down 900 yds. of 4-in. water main at George's-av., Avoca-place, Sydney-terr., and Green-rd., for U.D.C. Surveyor.

Jan. 18.—**Cheadle and Gatley.**—Improvements.—To Cheadle-rd., for U.D.C. S.

Jan. 18.—**Minehead.**—Piping.—15,000 lin. yds., of 10-in., 9-in., 8-in. and 6-in. pipes, for U.D.C. A. P. I. Cotterell & Son, engineers, 54, Victoria-st., Westminster, S.W.1. Dep. £5 5s.

Jan. 19.—**Elvington.**—Kerbing.—Surfacing roads in Elvington Village with water-bound flints on existing foundations, supplying and fixing concrete kerbing and channelling, forming gravel footpaths, tarpainting and sundry incidental works, for Tenants, Ltd. H. Barker, engineer, of Barker & Price, architects and surveyors, 8c, Queen-st., Deal. Dep. £3 3s.

Jan. 19.—**Glasgow.**—Sewers.—Construction of 6, 9, and 12-in. pipe sewers at new refuse disposal works in Helen-st. and Craigton-rd., Govan, for T.C. D. Stenhouse, T.C.

Jan. 19.—**London.**—Sewer.—300 feet of 4-ft. by 2-ft. 8-in. brick sewer (mostly in tunnel) and contingent works beneath New-st., Middlesex-st., for Corporation. City Engineer, Portland House, Basinghall-st., E.C.2. Dep. £2 2s.

Jan. 19.—**Rugby.**—Sewers.—Surface water sewers on Walding's estate, and completion of roads and footpaths on Brown's and Walding's estates, for Benefit Building Society. H. Dale, 6, Warwick-row, Coventry. Dep. £2 2s.

Jan. 20.—**Blackburn.**—Surfacing.—Excavating, underbedding and surfacing with tarred slag, of:—(1) St. Francis-rd., (2) Haston Lee-av. (Brownhill-rd. to Whalley New-rd.), and for paving with local setts of:—(3) Ruby-st. (Cornelian-st. to Whalley New-rd); (4) Topaz-st. (Cornelian-st. to Whalley New-rd.), for C.B. H. M. Webb, Borough and Water Engineer.

Jan. 21.—**Brierfield.**—Making-up.—Certain streets, for U.D.C. W. D. Haigh, E. and S. Dep. £2 2s.

Jan. 21.—**Crompton.**—Footpaths.—Constructing carriageway and footpaths of Longley-st., approximate length 180 yds., and constructing concrete foundation for carriageway and footpaths of Napier-st., approximate length 126 yds., for U.D.C. F. T. Jones, E. and S.

Jan. 21.—**Crompton.**—Foundations.—Laying of approximately 882 sq. yds., of mastic asphalt on a prepared concrete foundation in Napier-st., for U.D.C. F. T. Jones, E. and S.

Jan. 23.—**Manchester.**—Sewers.—Dealing with existing 2 ft. 6 in. diameter brick sewer in Gorton-lane, Gorton, from Casson-st. to Preston-st., and constructing about 207 lin. yds. of 3 ft. diameter brick sewer with necessary manholes, and connecting existing drains to new sewer, for T.C. P. M. Heath, T.C. Dep. £1 1s.

Jan. 23.—**Mickleover.**—Mains, etc.—Provision of mains, etc., in connection with hospital extensions at Mickleover, for Derby County Mental Hospital Committee. Edwards and Shaw, engineers, 105, Colmore-row, Birmingham. Dep. £1 1s.

Jan. 23.—**Rochford.**—Sewerage.—615 yds. of 7-in. and 8-in. stoneware sewers, with manholes and other works in Parish of Hadleigh, for R.D.C. Lemon & Blizard, 9, Victoria-st., Westminster. Dep. £3 3s.

Jan. 23.—**Romford.**—Improvement.—Widening to 50 ft. and reconstructing St. Mary's-lane, from Bell Hotel, Upminster, to Railway Bridge, Cranham, a distance of about 1,300 yds., for R.D.C. W. J. Grant, S. Dep. £2 2s.

Jan. 23.—**Steyning West.**—Road.—Laying-out and forming a new road at housing site at Monks, Lancing, comprising construction of 1,000 sq. yds. of carriageway, laying Keinton stone kerbing, and forming footpaths with similar appurtenant works, for R.D.C. G. W. Warr, E. and S.

Jan. 24.—**Salford.**—Sewerage.—In Great Clowes-st., for T.C. City Engineer.

Jan. 25.—**Birmingham.**—Sewer.—4,244 yds., of brick and concrete culverts and stoneware pipe sewers, together with other incidental works in private lands and in Berkeley-rd., Coventry-rd., Waterloo-rd., Church-rd., Harvey-rd., etc., at Hay Mills and South Yardley, for T.C. H. H. Humphries, City E. and S. Dep. £2.

Jan. 25.—**Weston-super-Mare.**—Widening.—Bristol-Western-super-Mare-rd., from a point about 500 yds. west of Wellsea Rhyne, for a distance of about 2,000 yds., towards village of Worle, for U.D.C. H. A. Brown, E. and S. Dep. £3 3s.

Jan. 26.—**Stafford.**—Sewage.—Sewage disposal works at Lammascote farm, for T.C. W. Plant, B.E. Dep. £2 2s.

Jan. 28.—**Sowerby.**—Making-up.—Nelson-st., Belmont-st., and West-parade, for U.D.C. J. Eastwood, S.

Jan. 30.—**Totnes.**—Road.—878 super. yds., for T.C. B.S. Dep. £1 1s.

Jan. 30.—**Woking.**—Making-up.—Park-rd., (East), length 770 yds., approximately; Park-rd., (West), length 303 yds., approximately; Thornash-rd., length 300 yds., approximately; Manor-rd., length 140 yds., approximately; Horsell-rise, length 380 yds., approximately; for U.D.C. G. J. Wooldridge, E. and S.

Jan. 31.—**Epsom.**—Sewers.—Iron and stoneware pipe sewers, manholes, etc., in Rookery Hill, Farm-lane and Park-lane, Ashtead Park estate, for R.D.C. F. A. Pratley, S.

Feb. 2.—**Keynsham.**—Making-up.—Sherwell-rd., Brislington, about 290 yds., in length, on Council's housing estate, with water-bound macadam (surface dressed), kerbing, tarmacadam footways, and incidental works, for R.D.C. H. W. Argile, Building Surveyor. Dep. £1 1s.

Feb. 4.—**Nottingham.**—Pipework.—Exhaust water and other pipework, valves, tanks, etc., for Corporation. Preece, Cardew & Rider, 8, Queen Anne's Gate, S.W.1. Dep. £2 2s.

Feb. 7.—**Deptford.**—Pumping Machinery.—At the Deptford pumping station, Brookmill-rd., Deptford, London, S.E.8, for M.W.B. Chief Engineer's Department (Room 173), 173, Rosebery-av., E.C.1. Dep. £3 3s.

Feb. 21.—**New Zealand.**—Deviation.—Construction of Wellington-Tawa flat deviation, Wellington-New Plymouth Railway, for Public Works Dept., Wellington. Commissioner for New Zealand, 415, Strand, London, W.C.2.

——.—**Blackpool.**—Street Works.—Stony Hill estate. Whitaker & Gardner, surveyors, 16, Edward-st.

——.—**Cwm.**—Main.—490 lin. yds. of 2-in. water main; 80 lin. yds. of 6-in. earthenware drain; also excavating and depositing 160 cubic yds. of earth. E. Williams, 81, King-st., Cwm.

Competitions.

(*See Competition News, p. 97.*)

Auction Sales, Tenders, etc.

Jan. 17.—**London.**—Joseph Hibbard & Sons will sell without reserve (by order of G. W. Beale, Esq., who is retiring from business, having sold the premises), at 505a, Cambridge-rd., builders' stock, etc. Auctioneers, 15, Newington-green, Islington, London, N.16.

Jan. 19.—**Essex.**—Farebrother, Ellis & Co. will sell, at the Eagle Hotel, Snaresbrook, four blocks of freehold building land, about one acre each. Auctioneers, 29, Fleet-st., E.C.4, and 26, Dover-st., Piccadilly, W.1.

✱Jan. 24 and following days.—**Maidenhead.**—F. W. Allwright & Son (Reading) will sell on the premises, Marlow-rd (owing to Messrs. J. K. Cooper & Sons removing to their new premises, 33, St. Luke's-rd., Maidenhead), stock-in-trade. Auctioneers, 6, Station-rd., Reading.

✱Feb. 1, 2 and 3, 6, 7, 8 and 9.—**Canterbury.**—Street and Lewis will offer for sale on the premises, "Hales Place," Canterbury, fixtures and fittings previous to demolition of the Mansion, contents of the chapel and theatre. The outside effects. The fabric of the mansion will be sold for demolition. Auctioneers, 21, North Audley-st., Grosvenor-sq., London, W.1.

At an early date.—**Windsor.**—Knight, Frank & Rutley will sell in blocks or in numerous lots (unless disposed of privately), by direction of the Council of the Imperial Service College Trust, freehold building land on the western fringe of the Royal Borough. Auctioneers, 20, Hanover-sq., London, W.1.

Public Appointments.

Jan. 21.—**Staffordshire.**—Architectural Assistant.—Required by the Staffordshire Education Committee. Architect, County Education Offices, Stafford.

Jan. 23.—**Straits Settlements.**—Architectural Draftsman required by the Municipal Commissioners of George Town, Penang, for the Engineers' Dept. Messrs. Peirce & Williams, MM.Inst.C.E., 64, Victoria-st., London, S.W.1.

Jan. 24.—**Manchester.**—Resident Clerk of Works.—Required at the Manchester Infirmary. Gen. Supt. and Sec.

Jan. 30.—**London.**—Housing and Town Planning Inspector.—Required by the Ministry of Health. Director of Establishments, Ministry of Health, Whitehall, S.W., on prescribed form.

Jan. 31.—**Swansea.**—Assistant Quantity Surveyor required in the Borough Architect's Dept. by the County Borough Council. H. L. Lang-Coath, Town Clerk, Guildhall, Swansea.

✱Feb. 11.—**London.**—Secretary required for the Royal Sanitary Institute, to take up duty at the end of June next. Chairman to the Council, 90, Buckingham Palace-rd., London, S.W.1.

MINING SUBSIDENCE

During an address read before the Surveyors' Institution on January 9, dealing with "The Reports of the Royal Commission on Mining Subsidence," the lecturer, Mr. Cecil H. Bailey, F.S.I., said that the Royal Commission was appointed in June, 1923, and had issued two reports. The first, dated December 21st, 1925, dealt with the problem of the drainage of the area known as the Doncaster area, and the second, dated June 23rd, 1927, dealt with the question in general. The Commission was concerned solely with coal and stratified minerals. It was only by the mining of these that widespread damage to property was caused in this country. It was natural that the most thickly populated areas were to be found where coal had been or was being worked, and in consequence the property liable to damage was just where damage was most likely to be caused.

Dealing with the Doncaster area, the lecturer said that in the first report the Commission dealt with the special problems arising from the probability of very extensive working of coal under the low-lying lands which constituted the basin of the Humber. It might be stated, for the information of those who did not know, that within the last twenty years a very great extension of the area containing economically workable coal had been proved and partly developed to the east in Yorkshire and Nottinghamshire. The report stated that a large part of this area was only a few feet above sea level; and as it was estimated that probably a total subsidence of 21 feet would take place, it was obviously a matter of importance that some arrangement should be made to preserve the surface which, to a great extent was valuable agricultural land. The Commission recommended the appointment of a further body to investigate this matter. This body had been appointed in 1926, and work was proceeding now in the area for the purpose of obtaining the necessary information to enable the problem to be dealt with. It was to be hoped that the Commissioners would be able to deal with the drainage in some way, so that while the nation benefited by the working of one valuable asset it might not be called upon to sacrifice the other.

Dealing with the second question which the Commission had before them, which was to consider whether the existing law bears unfairly on any section of the community, the lecturer said that local authorities and statutory companies were strongly represented before the Commission, and strong claims were made for the increase of their rights to compensation for damage to their property. The Commission, however, had decided against these claims, but had suggested that such works as canals, etc., should be brought under a similar arrangement to that made with the railways and embodied in Part II of the Mines (Working Facilities) Act, 1923 (68). The report recommended that it should be made (126) compulsory for colliery companies to furnish prospective builders and local authorities with particulars of coal workings and future developments. The success of this scheme would depend very largely on having a thoroughly competent mining engineer to advise in a general way as to the possibilities of the future.

The most drastic recommendation made by the Commission was one in which it was most difficult to anticipate the effect—this was the proposal to restore the right to support or compensation to houses of £40 or less rateable value. It was possible that the sudden acquisition of this right to compensation might in some cases upset the calculations of a particular mine-owner, who might be faced with heavy claims from property owners, the value of whose property depended upon the presence of the mine owner. The grievance of the small property owner was the chief reason for the appointment of the Commission, and no doubt in many cases it was right that he should be helped.

Some attempt might be made to discover more accurately than the Commission were apparently able to do the extent to which small house property lacked the right to support.

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TRADE NEWS

A Consequence of the Thames Flood.

We learn from Mr. G. H. Dibblin, builder and contractor, of Victoria Building Works, Victoria Wharf, Dartford, that as a result of last Saturday's flood, his stock of catalogues was completely ruined, and that he will be pleased to receive new catalogues and prices from interested builders' merchants. He mentions that the town of Dartford had a considerable area of its industrial quarter flooded with considerable damage to Mr. Dibblin's and other firms' plant.

British Industries Fair.

We learn that Messrs. Rd. Johnson, Clapham and Morris, Ltd., have taken a much larger stand than last year, and will show "Jacem" brand dead flat galvanised wire netting; woven wire and wire work of all descriptions; copper wire—bare, tinned, S.C.C., D.C.C., strand, miners' lamps; steel wire; lattice and "Keedon" concrete reinforcement; "bricktor" reinforcement; and concrete garden rollers. They will also have a wire drawing machine in operation and a loom producing woven wire. Their stand is No. 1 of Block 14C in the new "AA" building.

B.E.S.A. Specifications; Painting Materials.

In continuance of their programme of work in the Paint and Varnish Section, the British Engineering Standards Association have just issued British Standard Specifications for black oil pastes for paints, Brunswick or chrome greens (pure and reduced) for paints, gold size for paints, natural siennas for paints, natural umber for paints, ultramarine blue for paints, and red lead (non-setting) for paints. Limits for the chemical composition and the physical properties of the materials are specified together with appendices giving standard methods for carrying out the tests necessary for the purchase of these materials. One of the main difficulties with which the Committees have had to contend, we learn, has been the absence of data correlating the physical properties and chemical composition of the materials with their performance in actual use, and the B.E.S.A. hope that users of the specifications will keep records of their testing results and make them available for the Committees' use at a later stage, when the specifications are revised. Copies of these seven new specifications can be obtained from the B.E.S.A. Publications Department, 28, Victoria-street, S.W.1, price 2s. 2d. each, post free. A specification has also been prepared, and at the same price, for hand-shield and side-entry pattern two-pin wall plugs and sockets for domestic purposes (No. 73—1927).

PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board; Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

Armagh.—Regional Committee have approached Governors of Armagh Observatory regarding site for new school.

Athy.—Negotiations are on foot to acquire a site in Park for proposed new technical school.

Barnet.—Presbyterian Church congregation are actively engaged in raising money to build hall on vacant site in Plantagenet-rd.

Belfast.—Ministry of Education approved provisionally of proposal of E.C. to erect a public elementary school in Cliftonpark-av. district.—Ministry approved of site for school at Elmgrove, Beersbridge-rd.—Following plans been approved by City Surveyor:—2 villas, Deramore-drive, and 2 villas, Ailesbury-av., for H. Purdy: architect, T. D. Purdy; shops in Donegall-rd., for R. McComb: architect, T. Callender; 4 villas in Ashley-av., for W. Barton: architect, R. Barton; 5 houses, Beechmount-av., for A. McSherry: architect, S. J. McAvoy; 3 villas, Cedar-av., for Armstrong & Aicken: architect, F. Crawford; 6 houses, Dunraven-av., Keldie & Boyd: architect, R. H. Gibson; 16 houses in Clarendon-av., for S. Nelson: architect, R. Lynn; 8 houses, Clifton-drive, H. Forbes: architect, T. Guthrie; 12 houses, Rosapenna-drive, for T. Kyle, architect and builder.

Blackpool.—B.S. is to proceed with restoration of walls and shelters, and also to report on provision of recreational facilities.—B.S. has estimated cost of reinstating damage to parades and sea defence works at £8,450.—Branch library and reading room is proposed to be erected at North Shore.—Cleansing Superintendent been instructed to submit to next meeting report on erection of temporary conveniences at Squires Gate.—C.B. resolved that it be recommended to Estates and Housing Committee that a plot of land surplus to their requirements at Marton, be allocated for a branch library and reading room.—Cleansing Superintendent submitted plans of offices, garage, messrooms, etc., at new refuse disposal plant, of which T.C. provisionally approved. — Plans passed:—Cinema, Lytham-rd., Mr. & Mrs. Prichard; 6 garages and store, Coleridge-rd., Sam Hayes & Bro.; 32 houses, Collingwood-av., Layton Hall (Blackpool), Ltd.; 9 houses and 4 garages, Chislehurst and Lyndhurst-av., J. E. Wright; 16 houses, Sandycroft, J. R. Fielding; 30 houses, off Devonshire-rd., R. Fielding & Sons; 2 houses, Woodstock-gardens, R. Holt; 11 houses and garages, Langfield-av., J. Midgley; 6 houses, North-drive, W. Spencer.

Bournemouth.—T.C. passed plans:—4 pairs of villas and 1 villa, Middleton, Comley and Delhi-rds., Philpotts & Manners; cinema and business premises, Christchurch-rd., T. J. Rowley; 9 lock-up garages, rear of "Dunsdale," Poole-rd., H. C. Payne; 3 houses and garages, Norton-rd., S. Horsley; 3 houses, Seafield-rd., J. Jaques; 22 houses, Rosebud-av., J. Francis.

Brighton.—Plans go this month before T.C. for £60,000 bathing pool.

Buckfastleigh.—U.D.C. approved plans and decided that architects obtain tenders for 24 non-parlour and 2 parlour houses, on Chaffe's-ground, in Plymouth-rd.

Cavan.—Mr. Brennan, engineer, submitted his estimate to Board of Health for proposed additional building to Surgical Hospital.

Chesterton.—R.D.C. has approved erection of 6 houses at Fulbourn and Fen Ditton. Consent of M.H. is sought to borrow £8,000 from P.W. Loan Board and £8,000 from Lloyd's Bank, for housing purposes.

Chippenham.—R.D.C. is to obtain sanction to a further scheme for 20 houses.

Chipstead.—Reigate R.D.C. propose acquiring a site for housing.

Cockanree.—City Surveyor decided to complete work of repairing breaches in embankment, which is expected to cost about £9,000.

Colne.—T.C. has approved plans for extensions to laboratory at Ball Grove leather works, for W. & J. Sagar, Ltd.; 10 houses in Parker-st., for R. Fothergill.

Coventry.—Following building plans have been passed by the C.C.:—Extension of works, Clay-lane, for Triumph Motor Co., Ltd.; rebuilding of "The Wine Lodge" public-house, corner of Burges and Corporation-st., for Truman, Hanbury, Buxton & Co., Ltd.; extension to foundry, Holyhead-rd., for Alvis Car and Engineering Co., Ltd.; 8 houses, Beresford-av., for W. R. Lane; 5 houses, Milton-st., for J. W. Godfrey; offices and extension of works, Gas-st., for Clake, Cluley & Co.; polishing and grinding shops, etc., Edgwick Works, Canal-rd., for Alfred Herbert, Ltd.; extension of works, Cox-st., for Triumph Motor Co., Ltd.; 6 houses, Crabmill-lane, for C. H. Smith

Drumsollen (Co. Armagh).—Regional Committee decided to build new school.

Eastbourne.—Desirability of widening and generally improving main London-rd., between Eastbourne and Polegate has been discussed at a conference of local and county council representatives.—It is proposed to construct 11 groynes, at a cost of £15,411, along foreshore between fishing station and Langny Point.

Enfield.—M.A.B. recommend approval to conversion into rooms, at £1,485, subject to sanction of M.H., of nurses' cubicles in huts 25 and 26 at Northern Hospital.

Epping.—R.D.C. recommend that sites be purchased at Harlow for housing purposes, and that plans be prepared for the proposed houses.

Felling.—U.D.C. decided to proceed with further 27 houses on Bog House estate.

Feltham.—Plans for 44 houses in Staines-rd., by —. Hoskins, of Cranbrook-rd., Hounslow, been approved.

Filey.—U.D.C. appointed F. Vaux as architect in connection with proposed boiler house and show rooms.

Gateshead.—T.C. received letter from M.H., sanctioning application to borrow £7,498 for purchase of Shipcote House estate. Sanction also been received from Ministry for borrowing of £16,100 in respect of erection of a nurses' home and 4 attendants' cottages.

Halifax.—T.C. proposes new branch library in Beechwood-rd. Plans for remodelling old health offices at £1,678 are approved.

Hemsworth.—Following plans were approved by R.D.C.:—Additions to Working Men's Club, Brierley; 6 houses, Brierley, for R. Watson; 3 bungalows, Waggon-lane, Upton, for J. C. Pennington.

Hendon.—U.D.C. passed plans:—Amended plan for lock-up garages, Edgware-rd., Cricklewood, J. Brown; block of shops with flats, The Broadway, Mill Hill, North, Robin & Co.; 8 flats, Neeld-crescent, J. C. S. Soutar; 6 pairs of semi-detached houses, The Drive, Mill Hill, E. L. Saunders.

Kiltealy.—Steps been taken to provide school.

Leeds.—Tenders are to be invited for distempering the nurses' bedrooms and other painting work at the Infants' Hospital, Wyther.—City E. is to submit tender for extension of Dewsbury-rd. pump-house.—City Librarian submitted particulars of accommodation required in connection with proposed branch library at Hunslet, and T.C. resolved that City E. prepare sketch plans and submit an estimate of cost of provision of library.—T.C. resolved that lay-out plan submitted by G. W. Atkinson of proposed shop sites at junction of Horsforth-lane and Otley-rd., be approved.—Plans passed: J. Greenwood, 4 semi-detached houses, Stanmore-cres., Headingley; Thomas & Hedley Johnson, 18 semi-detached houses, Woodside-av. and place, Kirkstall.

Leicester.—T.C. are proposing to apply for sanction to borrow £34,383 for erection of 81 houses.

Leyton.—T.C. passed plans:—Antill, 77 garages and w.c. at Norlington-rd.; J. E. Nelson, 28 houses, Sandringham-rd.

Lincoln.—City Council reappointed committee with view to going into the question of provision of public baths and lavatories.—Maternity and Child Welfare Committee recommend scheme for provision of maternity hospital, at £18,250.—Question of providing a crematorium been raised by Council.—In respect to proposed new central omnibus garage Council recommended that report of Surveyor be approved, and that design of the modified structure be adopted, estimated cost, including garage being £23,329, and that application be made to M.T. in order to borrow £19,329 for its provision.

Liverpool.—J. B. Kenny proposes cinema on land at Broadway, Norris Green.

London (Hampstead).—M.A.B. recommend approval be given, subject to sanction of M.H., to demolition of 23, Leighton-rd., and to erection on its site, at an estimated cost of £4,265, of new building.

London (Lee Green).—M.H. approved proposals of M.A.B. for connection of chapel at Grove Park Hospital with general hot water system provided at institution, at £150.

London.—M.A.B. received M.H. sanction to provide separate bath room accommodation for girls patients at St. Anne's Home.

London (New Cross).—M.H. given sanction to M.A.B. to £240 for provision of additional accommodation for examination of sick staff at South-Eastern Hospital.—Sanction to £10,650 been received for conversion of a ward block at South-Eastern Hospital into isolation accommodation for M.A.B.

London (Temple).—M.A.B. recommend approval be given to carrying out, at £575, of certain works in connection with prevention of flooding of basement at the Head Office.

London (Tooting).—M.H. forward sanction to £1,735 for provision of additional fire escape facilities to staff blocks A to G at Grove Hospital for M.A.B.

Maltby.—U.D.C. are proposing to erect between 20 and 25 more houses.

Melton.—Plan was provisionally approved by R.D.C. of police house, Main-st., Asfordby, for the Leicestershire C.C.

Moira (Co. Down).—R.D.C. decided to formulate a scheme for building of 20 labourers' cottages.

Navan.—C.C. written to Meath Health Board approving loans of £12,600 and £6,000 for erection of cottages and works at Institutions.

Nenagh.—U.D.C. decided to advertise for tenders for houses.

Newry.—Northern Ministry of Finance approved loan of £2,800 by U.D.C. towards provision of bridge over canal, estimated to cost £6,000.

Plymouth.—C.B. are considering scheme for additional office accommodation.—Corporation are also considering schemes for lavatory in Hmbank-ment-rd., and extension to lavatory in George-st.—Electricity Committee received sanction to building work alterations and B.C. received sanction for provision of science laboratory, art room and a hall at Devonport High School.—B.S. is to prepare estimates for repairs to Devonport Branch library.—Plans passed:—J. R. Randall, assembly hall, garage, etc., rear of 28-32, Mutley-plain; J. Rendle, 6 bungalows, Coleridge-rd.; E. J. Manning, 4 houses, Burnham Park-rd.; White & Jackson, 5 houses, Stangray-av.; J. T. Northcott, new street and 3 bungalows, Little Ash Quarry, Saltash Passage; G. H. Webber, 10 houses, Glenavon-rd.

Reading.—Plans approved by the Drainage and Buildings Committee: Three houses, G. H. Frazier, in Oxford-rd., Tilehurst; five pairs of houses, R. J. Haddock, in Park-lane, Tilehurst; additions to factory by Samuel Elliott & Sons, Ltd., Gosbrook-rd.; eleven garages by Lady Mullens at rear of a petrol filling station in Oxford-rd.; four garages by B. C. Stadley in Mundesley-st.; six garages by T. H. Knight in St. Anne's-rd.—T.C. are to invite tenders for internal decoration work to 100 houses on Shinfield-rd. estate.

Retford.—T.C. has authorised Clerk to make application to the P.W. Loan Commissioners for a loan of £13,080 for housing purposes.

Scarborough.—B.E. is to submit a plan and estimated cost of 24 hard tennis courts at North Side.

Sheffield.—T.C. passed plans:—3 bungalows, Daleview-rd., and Folds-lane, J. V. Auckland; 4 houses, Richmond-rd., A. Owen; 8 houses, lock-up shops, and 2 garages, Infirmary-rd., and Portland-st., J. H. S. Randall, Ltd.; 5 houses and garages, Endcliffe-vale and Endcliffe Glen-rds., Reeves Charlesworth, Ltd.; 106 houses, Scheme 6, Longley estate, for Estates Committee; 6 houses, Dalewood-av., J. W. Bailey; 3 houses, and garage, Norton Lees-rd., W. C. Mander; 5 houses, shops and garages, Marlcliffe-rd., A. Lonsdale; 6 houses and garages, Pingle-rd., J. W. Ardern; 3 houses and shops, Longley estate, for Shepherd, Lowe & Ash; 95 houses (Scheme 9), Longley estate, for Estates Committee.

Southend.—T.C. are to build 108 houses and 12 blocks of flats.

Sunderland.—Wear Commissioners decided to lengthen breakwater on Hudson foreshore by 150 ft. at estimated cost of £5,000; and to remove as far as possible the invert at Hendon Dock junction gateway at a cost of between £1,500 and £3,000.

Tanderagee.—Regional Committee decided to provide school for 200 children.

Tynemouth.—T.C. passed plans: 18 semi-detached houses, St. George's-rd., and Foxton-av., St. George's estate, Cullercoats, by J. R. Wallace, for H. D. Burton, Ltd.; 6 semi-detached houses, Foxton-av., and Shorestone-av, St. George's estate, Cullercoats, by J. R. Wallace, for Beautyman & Gray.

Warrenpoint.—Northern Ministry of Home Affairs held an inquiry into U.D.C.'s applications for loans amounting to £3,850, for provision of 2 public lavatories, improvements to open-air sea baths, and laying of new footpaths.

Warrington.—Housing Sub-Committee of T.C. given permission for allocation of land for site of a sub-station at Bewsey.

Watchett.—U.D.C. are to seek another site for further houses.

Wednesbury.—Tenders are to be invited for 80 houses at Mesty Croft site, for the U.D.C. A. Booth, B.S.

Welwyn.—The R.C. authorities have agreed to acquire a site adjoining S. Bonaventure Church for erection of a convent school. Plans of the Pear Tree Elementary School are now completed; Welwyn G.C. Company are making representations to the County Council as to the need of a secondary school in the town.

Wembley.—U.D.C. are to widen the main Watford-rd., at £78,000.

Whitley Bay.—U.D.C. is to make application for sanction to borrow £6,775 for motor-omnibus station at corner of Oxford-st. and Whitley-rd.

Wicklow.—County Board of Health applied for loan of £4,200 to defray cost of providing a convent in County Home for Sisters.

Wirral.—M.H. has sanctioned raising by B.G. of £16,700 for proposed erection of additional accommodation for nurses.

Worthing.—T.C. have instructed the Surveyor to prepare scheme for improvement schemes for Corporation baths. S. was also instructed to prepare sketch plan and estimate of cost of twelve slipper baths, with caretaker's rooms and public lavatory accommodation on corner of Beach House Park, fronting Lyndhurst-rd.

York.—T.C. passed plans:—H. Colman & Sons, houses, Bootham-cres.; Culliford & Tindall, 4 houses, Huntington-rd.

FIRE.

Hayes.—Premises of Hayes Linoleum Co. have been destroyed by fire, and damage is estimated at £20,000.

* See also our List of Contracts, Competitions, etc.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 5 6
Second Hard Stocks	3 19 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 14 3	Best Blue Pressed Staffs	9 5 6
Do., grooved for Plaster	2 16 3	Do. Bullnose	9 15 0
Do., Bullnose	3 8 3	Blue Wire Cuts	7 5 0
Best Stourbridge Fire Brick :—			
2½ in.	8 11 0	3 in.	10 3 0
GLAZED BRICKS—			
Best White Ivory, and Salt Glazed Stretchers	21 0 0	D'ble Str'tch'rs	29 10 0
		D'ble Headers	26 10 0
		One Side and two Ends	30 10 0
Headers	20 10 0	Two Sides and one End	31 10 0
Quoins, Bullnose and 4½ in. Flats	27 10 0	Splays and Squints	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.

Delivered London.

	s. d.		s. d.
2 in. per yd. super.	1 11	3 in. per yd. super.	2 9
2½ in. „ „	2 4	4 in. „ „	3 6

	s. d.	
Thames Ballast	10 6	per yd.
Pit Sand	13 9	„ „
Thames Sand	14 6	„ „
Best Washed Sand	14 6	„ „
¼ in. Shingle for Ferro-Concrete	12 9	„ „
½ in.	14 0	„ „
¾ in. Broken Brick	11 6	„ „
Pan Breeze	8 0	„ „

delivered 2 miles radius Paddington

Per ton delivered in London area in full van loads.

Best Portland Cement. British. Standard Specification. Test £2 13 0 to £2 15 0 46s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 10 0
Super Cement (Waterproof)	4 3 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Sirapite, Coarse	3 9 0
„ Finish	3 17 0
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	1 17 6
Hair per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dp.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10
PORTLAND STONE.—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4½
Do. do. delivered on road wagons at above stations, per ft. cube	4 5½
White basebed, 3d. per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ¼d. beyond 30 ft.	
HOPTON-WOOD STONE—	
Delivered at any Goods Station, London.	s. d.
Random blocks, from 10 ft. and over P. ft. cb.	17 0
Sawn two sides „	27 0
Sawn three or four sides „	32 0
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station, London.	
6 in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5 6
6 in. rubbed two sides, ditto „	6 0
3 in. sawn two sides slabs (random sizes) „	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 3½
HARD YORK—	
Delivered at any Goods Station, London.	
Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto „	6 1½
4 in. sawn two sides slabs (random sizes) „	2 1½
3 in. ditto ditto „	2 10
2 in. self-faced random flags .. Per yd. super.	8 8

CAST STONE.

Delivered in London area in full-van loads, per ft. cube:—Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£3 0	3 × 6	£21 0
4 × 9	26 0	3 × 11	25 0
4 × 8	25 0	2 × 11	26 0
4 × 7	23 0	3 × 9	24 0
3 × 8	22 0	2½ × 9	24 0
3 × 7	22 0	3 × 4½	21 0
2½ × 7	21 0	3 × 4	21 0

PLANED BOARDS.

1 × 11	£30 0	1 × 9	£28 0

PLAIN EDGE FLOORING.

Inches	per sq.	Inches.	per sq.
¾	18/-	1¼	30/-
⅞	21/-	1½	34/-
1	24/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.	Inches.	per sq.
1	21/-	¾	16/6
1¼	30/-	⅞	19/-
1½	34/-	1	24/-

MATCHING (BEST).

Ins. BATTENS.	s. d.	SAWN LATHS.	s. d.
¾ × 2 .... per 100 ft.	2 6	Per bundle	2 6

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 16 0 to	0 18 0
Dry American and/or Japanese Figured Oak, ft. cube	0 14 0 to	0 15 0
Dry American and/or Japanese Plain Oak, ft. cube	0 10 0 to	0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 15 0 to	0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 16 0 to	1 1 0
Dry Cuba Mahogany, ft. cube	1 1 0 to	1 10 0
Dry Teak, ft. cube	0 13 0 to	0 15 0
Dry American Whitewood, ft. cube	0 10 0 to	0 14 0
Best Scotch glue, per cwt.	4 10 0 to	5 —
Liquid Glue, per cwt.	4 7 0 to	5 10 0

SLATES

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000.

	£ s. d.		£ s. d.
24 by 12	32 18 4	18 by 10	18 12 11
22 by 12	29 17 11	18 by 9	16 9 2
22 by 11	27 14 2	16 by 10	15 12 6
20 by 12	26 5 0	16 by 8	12 3 9
20 by 10	22 10 0		

TILES.

Delivered at London rate stations in full truckloads of not less than 6 tons.

	Per 1,000 f.o.r. London.
Best machine-made tiles from Broseley or Staffordshire district	5 7 6
ditto hand-made ditto	5 17 6
Ornamental ditto	6 2 6
Hip and valley tiles (per dozen) Hand-made	0 9 6
Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—	£ s. d.
R.S. Joists, cut and fitted	12 10 0
Plain Compound Girders	14 10 0
„ Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.—To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	12 0 0	⅜ in. to ½ in.	10 15 0
⅜ in.	11 0 0	⅝ in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Tubes. Wrought Mild Steel.	Tubes. Genuine Staffs. Iron.	Fittings. ½ in. and under.	Fittings. Over ½ in.	Flanges. ½ in. and under.	Flanges. Over ½ in.
	%	%	%	%	%	%
Gas	67½	50	42½	45	52½	55
Water	63½	46½	37½	40	47½	50
Steam	60	42½	32½	35	42½	45
Galv. gas	55	37½	32½	35	42½	45
Galv. water	50	32½	27½	30	37½	40
Galv. steam	45	27½	22½	25	32½	35

C.I.—HALF-ROUND GUTTERS—London Prices ex Works

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/3½	11½d.	3½d.
3½ in.	1/4½	1/1½	3½d.
4 in.	1/6	1/3	3½d.
4½ in.	1/7½	1/4½	4½d.
5 in.	1/10½	1/6½	5½d.
O.G. GUTTERS.			
3 in.	1/8	1/4½	3½d.
3½ in.	1/8	1/4½	3½d.
4 in.	1/9½	1/4½	3½d.
4½ in.	1/11½	1/7½	4½d.
5 in.	2/4½	1/10½	5½d.

RAIN-WATER PIPES, &c.

per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/10½	1/3	1/9½
2½ in. „	2/0½	1/4½	2/1½
3 in. „	2/6	1/9	2/7½
3½ in. „	2/11½	2/0½	3/0½
4 in. „	3/5	2/6½	3/8½

L.C.C. COATED SOIL PIPES—London Prices ex Works

	Pipe.	Bends. stock angles.	Branches. stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. plain	3 3	2 4½	2 10
2½ in. „	3 9	2 7½	3 7
3 in. „	4 6	2 10	4 2½
3½ in. „	4 11½	3 7	4 11½
4 in. „	5 5½	4 0½	5 9

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe.	Bends, stock angles.	Branches. stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 4	5 1	8 0½
4 in. „ „	6 2	5 8	10 0
5 in. „ „	7 2	10 10	17 1
6 in. „ „	8 6	13 2	21 9

Gasken for jointing, 38/6 per cwt.

IRON—	Per ton in London. £ s. d.	£ s. d.
Common bars	13 0 0 to	14 10 0
Staffordshire Crown Bars—		
Good merchant quality	14 5 0 to	15 15 0
Staffordshire Marked Bars	16 5 0 ..	17 5 0
Mild Steel Bars	10 0 0 ..	11 0 0
Steel Bars. Ferro-Concrete quality, basis price	10 0 0 ..	11 0 0
Hoop iron, basis price	12 0 0 ..	13 0 0
„ Galvanised	27 0 0 ..	28 0 0
Soft Steel Sheets, Black—		
Ordinary sizes to 20 g.	13 5 0 ..	14 5 0
„ „ „ 24 g.	14 5 0 ..	15 5 0
„ „ „ 26 g.	16 5 0 ..	17 5 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 2 g.	15 10 0 ..	16 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 10 0 ..	17 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18 10 0 ..	20 10 0
No. 1 quality £4 per ton extra.		
Flat and Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18 0 0 ..	19 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 10 0 ..	19 10 0
Ordinary sizes 6 ft. to 9 ft. to 26 g.	21 10 0 ..	22 10 0
Sheets Galvanised Flat, Best quality—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	22 0 0 ..	23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 0 0 ..	26 0 0
Best Soft Steel Sheets, 26 g.	25 10 0 ..	26 10 0
Cut Nails, 3 in. to 6 in.	19 0 0	
(Under 3 in. usual trade extras.)		

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD &c.

(Delivered in London.)	£ s. d.
LEAD.—Sheet, English, 4 lb. and up	31 0 0
Pipe in coils	31 10 0
Soil pipe	34 10 0
Compo Pipe	33 0 0
NOTE.—Countrydelivery, £0s. per ton extra; lots under 3 cwt. 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes. 5s. cwt. extra.	
Oil lead, ex London area, at Mills per ton	21 5 0

COPPER.

	s. d.
Seamless Copper tubes (basis) per lb.	1 0½
Strong sheet „	1 0
Thin „	1 1
Copper nails „	2 3
Copper wire „	2 4

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz.

CAPS AND SCREWS.

1¼ in.	1½ in	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- „

TIN.—English Ingots, 3/1 per lb. SOLDER.—Plumber's 1/3, Tinmen's 1/6, Blowpipe 1/7 per lb.

PAINTS, &c.

			s. d.
Raw Linseed Oil,	in pipes per gallon		0 2 11
„ „ „	in barrels „		0 3 1
„ „ „	in drums „		0 3 3
Boiled „	„ in barrels „		0 3 3
„ „	„ in drums „		0 3 6
Turpentine	in barrels „		0 3 11
„	in drums (10 galls.) „		0 4 1
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)			47 5 0

GENUINE WHITE LEAD PAINT—

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J," Brand, and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered 66 15 0

		£ s. d.
Red Lead, Dry (packages extra)	per ton	38 10 0
Best Linseed Oil Putty	per cwt.	0 15 0
Filicol	„	0 15 6
Size. XD quality	fkn.	0 3 6

(*Continued on p. 121.*)

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per ft.		Per ft.
15 oz. fourths ..	2½d.	32 oz. fourths	6½d.
15 ,, thirds ..	3½d.	32 ,, thirds.....	9½d.
21 ,, fourths ..	4d.	Obscured Sheet, 15 oz.	3½d.
21 ,, thirds....	4½d.	,, ,, 21 ,,	4½d.
26 ,, fourths ..	4½d.	Fluted 15oz.6½d.. 21oz.	9d.
26 ,, thirds....	6½d.	En'lled 15 oz.4½d.,21oz.6½d.	

Extra price according to size and substance for squares cut from stock

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per ft.
Rolled plate	4½d.
⅛ Rough rolled	5½d.
¼ Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic Stippolyte, and small and large Flemish White	6d.
Ditto, tinted	8½d.
Rolled Sheet.....	5½d.
White Rolled Cathedral.....	5½d.
Tinted do.	7½d.

Cast plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon. £	s.	d
Oak Varnish	Outside	0	14	0
Fine ditto	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage.....	ditto	1	4	0
Best ditto	ditto	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting.....	ditto	1	0	6
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	2	0
Best ditto	ditto	1	12	0
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	6
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	6
Knotting (patent).....		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Terebine.....		0	9	0
Cuirass Black Enamel.....		0	7	0

Proposed New Manchester Hotel.

A big property deal in Manchester has been effected by Mr. Emanuel Nove, of Withington, who has purchased Longford Buildings, a block of property extending between Hulme-street and Chester-street, off Oxford-road, Manchester, and covering an area of 5,100 square yards, and with a frontage to Oxford-road of 340 feet. It may be taken, says the "Manchester Evening Chronicle," that the buildings, which embrace a big warehouse owned by a large Manchester firm, will be demolished, and modern buildings erected on the site.

Department of Scientific and Industrial Research.

This Department has recently issued reports on several subjects of great interest to architects, contractors and others connected with building. A subject dealt with that will be of great value to the architectural profession is "The Penetration of Daylight and Sunlight into Buildings," obtainable at H.M. Stationery Offices, price 1s. net. The principles governing the access of daylight to the interiors of buildings are of great importance in architectural design. Considerable progress has been made in recent years in the study of such principles, the three most important features of which are:—(1) The establishment of the ratio generally known as the daylight factor, or sill ratio, as a recognised criterion of interior lighting; (2) the tendency towards the establishment of a given value of sill ratio as indicating the borderline between the sufficiently and insufficiently lighted portion of a room; (3) the development of methods of measuring the sill ratio in cases of existing buildings, and of calculating it in the case of a proposed building. The Illumination Research Committee now presents a general description of the present state of knowledge in these matters, based upon a report written by Mr. P. J. Waldram, F.S.I. This knowledge will, we think, be found of the greatest value and assistance. Other pamphlets issued are:—"The Air-Seasoning and Conditioning of Timbers" (2s. net); "Slag, Coke Breeze and Clinker as Aggregates" (9d. net); and "Pozzolanas" (3d. net).

THE SCOTTISH BUILDER

NEW BUILDINGS IN SCOTLAND

Airdrie.—HOUSES.—The Town Council has agreed to accept offers for the erection of the first instalment of houses at the Mavisbank (slum improvement) housing site, comprising 16 two-apartment flatted houses, four houses in a block, subject to the approval of the Board of Health. The total cost of these houses is £4,558 15s. The Council also accepted, subject to the Board's approval, offers for erecting the second instalment of houses at this site, comprising 48 three-apartment houses, the total offers amounting to £14,610 16s. The Board's approval has been intimated of a lay-out plan for 28 more houses at the Frew and Mash-streets site.

Ayr.—HOUSING.—At a sitting of Ayr Dean of Guild Court, plans were passed of the first development of Ayr Corporation new housing scheme, consisting of 18 bungalow three-apartment dwelling-houses, estimated to cost £8,100. Plans were also passed of an institute for the deaf and dumb on behalf of the Ayrshire Mission to the Deaf and Dumb, the estimated cost being £900.

Clydebank.—HOUSES.—The Town Council are inviting tenders for the erection of 32 houses on Whiterock housing site, Clydebank. Applications are to be made to the Burgh Surveyor.

Dundee.—BUILDINGS.—Plans of new buildings, etc., have been lodged at the Office of the City Engineer:—Forthill-drive, Broughty Ferry—Dwelling-houses for Dundee T.C.: Kingsway—Additions for Dundee Education Authority, architects, Maclaren, Soutar & Salmond, 15, South Tay-street.

Edinburgh.—RECONSTRUCTION.—The Plans and Works Committee of the Town Council recommend that the proposal to reconstruct Huntly House for the purpose of accommodating the Corporation Museum, at an estimated cost of £9,500, be approved.

Falkirk.—EXTENSIONS.—The Falkirk Dean of Guild Court has approved plans for the erection of an addition to the structural fitting shop at Mungal Foundry, belonging to the Carron Company, Carron, at an estimated cost of £1,000.

Glasgow.—IMPROVEMENTS.—The Corporation has approved the erection of a block of buildings at Glasgow Cross. The actual site is on ground between Gallowgate and London-street.

Murrayfield.—EXTENSION.—A scheme for extension to the Murrayfield Parish Church has been proposed by the Rev. J. R. Brown, who has estimated the scheme to cost £8,000.

Portobello.—PIER.—The Edinburgh Town Council has approved the recommendation that the combined scheme for a pier at Portobello, with sea-water culverts for the Electricity Generating Station, be proceeded with, at an estimated cost of £90,000.

Art Gallery for Greenock.

At the annual joint meeting of the proprietors of Greenock Library and members of Greenock Philosophical Society, held in the Watt Hall, it was reported that the fund for the extension of the M'Lean Museum and the provision of an art gallery now amounts to £20,926, and that the success of the scheme is assured. Before building is started, however, it is felt that the fund must be considerably increased in order to provide for the adequate endowment of the new buildings.

Obituary.

The death has occurred of Mr. John Crawford, builder, Birkinshaw, by Larkhall.

The death has also occurred of Mr. William Stevenson, builder, 36, Garturk-street, Glasgow.

The death has occurred, at Deebank-road, Ballater, on December 17, of Mr. Francis Duguid, joiner.

The death has just taken place of Mr. William Love, mason and builder, Kirkcowan.

At Glasgow, on December 21, the death occurred of Mr. Allan Muir, builder, of Alexander Muir & Sons.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons', Bricklayers' Plasterers'.
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/7	1/7	1/7	1/7½	1/7	1/7	1/5½	1/1½
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/6½	1/3
Bathgate	1/8	1/8	1/8	1/8½	1/8	1/8	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge	1/8	1/9	1/8	1/8	1/8	—	1/6½	1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Dunfermline	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Edinburgh.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Falkirk	1/7½	1/7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/0½ to 1/3½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½
Inverness	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/- to 1/2
Kilmarnock	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkcaldy	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkwall	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/- to 1/2
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Motherwell	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/3	1/8	1/6½	1/3
Stirling	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Stirlingshire ..... (Eastern District)	1/8-1/10	1/8-1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 115.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		£ s. d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11 0
Add if in clay	" "	1 0
Add for every additional depth of 6 ft.	" "	0 6
Planking and strutting to trenches	per foot super	0 5
Do. to sides of excavation, including shoring	" "	1 0

CONCRETOR.

		£ s. d.
Portland cement concrete in foundation 1 to 6	per yard cube	38 0
Add if in underpinning in short lengths	" "	7 0
Add if in floors 6 in. thick	" "	3 3
Add if in beams	" "	3 9
Add if aggregate 1 : 2 : 4	" "	10 0
Add for ho sting not exceeding 10 ft. beyond the first 10 ft.	" "	2 6

BRICKLAYER.

		£ s. d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	32 0 0
Add if in stocks	"	7 10 0
Add if in Staffordshire blues	"	22 0 0
Add if in Portland cement and sand	"	1 10 0

FACINGS.

		s. d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0 0 1½

POINTING.

		s. d.
Neat flat struck or weathered joint	" "	0 0 3

ARCHES.

Extra only to the price of ordinary brickwork :—

		s. d.
Fair external in half brick rings	" "	0 0 10
Axed in stocks	" "	0 1 9
Rubbed and gauged jointed in putty camber or segmental	" "	0 6 0

SUNDRIES.

		£ s. d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0 1 0
Setting ordinary register grates and stoves	each	1 0 0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4 15 0

ASPHALTER.

		s. d.
Half-inch horizontal damp course	per yard super	4 6
Three-quarter-inch vertical damp course	" "	9 6
Three-quarter-inch on flats in two thicknesses	" "	6 3
Angle fillet	per foot run	0 3
Skirting and fillet 6 in. high	" "	1 2

MASON.

		£ s. d.
York stone templates fixed	per foot cube	13 0
York stone sills fixed	" "	22 0
Bath stone and all labour fixed	" "	10 6
Portland stone fixed	" "	20 0

SLATER.

		£ s. d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72 9
Do. 20 in. × 10 in. Do. Do.	"	80 9
Do. 24 in. × 12 in. Do. Do.	"	90 0

CARPENTER AND JOINER.

		£ s. d.
Fir framed in plates	per foot cube	5 0
Do. joists	" "	5 6
Do. roofs, floors and partitions	" "	6 0
Do. trusses	" "	8 6

	¾"	1"	1¼"	2"
Deal rough close boarding (per sq.)	35/6	40/-	45/-	72/-

		s. d.
Flat centering for concrete floor, including struts or hangers	"	50 0
Do. to beams	per ft. sup.	1 0
Centre for arches	"	1 6
Gutter boards and bearers	"	1 0

FLOORING.

	¾"	1"	1¾"	1½"
Deal-edges shot (per sq.)	—	44/6	53/-	60/6
Do. tongued and grooved "	—	49/-	57/6	65/-
Do. matchings "	45/-	51/-	—	—
Moulded skirting, including backings and grounds (per ft. sup.)	1/6	1/9	2/-	2/6

SASHES AND FRAMES.

		s. d.
One-and-a-half moulded sashes or casements	per foot super	1 10
Two Do. Do. Do.	" "	2 1
Add for fitting and fixing	" "	0 3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	" "	3 9

DOORS.

	1½"	1¾"	2"
Two-panel square framed (per ft. sup.)	2/1	2/4	2/6
Four-panel Do. "	2/5	2/8	2/11
Two-panel moulded both sides "	2/8	2/11	3/2
Four-panel Do. Do. "	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s. d.
Deal wrot moulded and rebated	per foot cube	14 0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	"	1/4	1/6	1/9
Add if cross-tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s. d.
Housings for steps and risers	each	0 11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0 9
Mahogany handrail : average, 3 in. × 3 in.	" "	6 0
Add if ramped	" "	12 0
Add if wreathed	" "	24 0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s. d.
Rolled steel joists	per cwt.	16 3
Plain compound girders	"	19 0
Do. stanchions	"	21 9
In roof work	"	27 6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	"	1/9	2/-	2/6	3/3
Rain-water pipes with ears	"	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s. d.
Milled lead and laying in flashings and gutters	per cwt.	43 0
Do. Do. in flats	"	42 0
Extra labour and solder in coated cesspools	each	6 9
Welf joint	per ft. run	0 6
Soldered seam	" "	1 3
Copper nailing	" "	0 4

		½"	¾"	1"	1¼"	2"	4"
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	"	1/8	2/2	2/7	3/10	—	—
Do. soil	"	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"	—	—	—	14/7	19/6	—
Bib cocks and joints	"	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	"	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s. d.
Render, float and set in lime and hair	per yard. sup.	2 6
Do. Do. Sirapite	" "	2 9
Do. Do. Keen's	" "	4 0
Add saw lathing	" "	1 7
Add metal lathing	" "	2 6
(Not including hangers or runners, etc., for suspended ceilings.)		
Portland cement screed	" "	2 2
Do. plain face	" "	3 3
Mouldings in plaster	per 1 girth	0 1¾
One-and-a-half granolithic pavings	per yard sup.	5 9

GLAZIER.

		s. d.
21-oz. sheet plain	per foot sup.	0 8½
26-oz. Do.	" "	1 0
Obscured sheet	" "	1 1
⅛-in. rolled plate	" "	0 9
¼-in. rough rolled or cast plate	" "	0 10½
¼-in. wired cast plate	" "	1 4

PAINTER.

		s. d.
Preparing and distempering, 2 coats	per yard sup.	0 9
Knotting and priming	" "	0 7
Plain painting, 1 coat	" "	0 9
Do. 2 coats	" "	1 2
Do. 3 coats	" "	1 9
Do. 4 coats	" "	2 4
Graining	" "	2 3
Varnishing twice	" "	1 9
Sizing	" "	0 3
Flatting	" "	0 7
Enamel	" "	1 1
Wax polishing	per foot sup.	0 6
French polishing	" "	1 2
Preparing for and hanging paper	per piece, 2/- to 4/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployments Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him next week not later than Tuesday evening.

* Denotes *accepted.*

† Denotes *provisionally accepted.*

‡ Denotes *recommended for acceptance.*

Denotes *accepted subject to modifications.*

Bexhill.—Practical subjects centre, in London-road, for the T.C.:—

T. L. McCormick, Bexhill	2,887	0	0
S. E. Moss, Southend	2,860	0	0
F. Banks, Bexhill	2,641	8	0
A. Radcliffe, Hastings	2,580	0	0
Peerless Dennis, Ltd., Eastbourne	2,549	0	0
Nissen-Petren Houses, Ltd., London	2,483	10	6
C. E. Skinner & Sons, Ltd., Chatham	2,475	0	0
White Brothers, Bexhill	2,375	19	3½
Rice & Son, Margate	2,362	0	0
J. B. Sharman, Ltd., Ramsgate	2,355	0	0
H. & J. Taylor, Hastings	2,353	10	0
John Crewdson, Horley	2,320	0	0
James Bodle, Ltd., Bexhill	2,249	0	0
Ringmer Building Works, Ringmer	2,238	0	0
R. Cook & Sons, Ltd., Crawley	2,175	0	0
J. W. Woolnough, Ltd., Eastbourne	2,111	0	0
*W. J. Simms, Sons & Cooke, Ltd., Nottingham	2,075	0	0

Bexhill.—Workshops in Ashdown-road, for the T.C.:—

F. Banks, Bexhill	£642	10	
R. Cook & Sons, Crawley	586	0	
Rice & Sons, Margate	575	0	
J. Bodle, Ltd., Bexhill	565	0	
A. Radcliffe, Hastings	562	0	
White Bros., Bexhill	540	0	
Nissen-Petren Houses, London	517	13	
*W. J. Simms, Sons & Cooke, Nottingham	485	0	
J. W. Woolnough, Ltd., Eastbourne	460	0	

Bury St. Edmunds.—60 houses on the Perry's Barn site, for the T.C. Mr. R. H. Beaumont, Borough Surveyor:—

F. A. Roper, Ipswich	£29,878
G. J. Hawkes & Sons, Chelmsford	29,475
W. F. Cross, Ltd., Felixstowe	28,990
C. Maidwell & Co., Stowmarket	28,400
W. Jones & Sons, London	27,512
Olley Bros., Brandon	27,359
F. P. Stammers, Felixstowe	26,750
Pollard & Skerritt, Ipswich	26,300
E. V. Barber, Ipswich	26,252
Barrett & Wright, London	26,238
Long & Whatling, Ipswich	26,186
Rogers Bros., Felixstowe	26,064
Masterson Bros., Ipswich	26,000
Fuller & Johnson, Soham	25,900
Lister-Mawby, Hornsey	25,736
H. C. Greengrass, Norwich	25,500
Dry-Shell Concrete Construction Co., London	25,380
W. B. Kingsbury, Boxford	25,250
A. R. Plummer, Bury St. Edmunds	25,004
H. F. Sewell, Bury St. Edmunds	24,984
Thompson & Sons, Grimsby	24,956
Perrys (Ealing), Ltd., London	24,944
T. W. Raper, Stanley	24,860
J. Byrom, Ltd., Bury (Lancs)	24,826
W. Barnes, Newmarket	24,792
H. T. Brisley, Stratford-on-Avon	24,627
Clarke & Sons, Melton Mowbray	23,672
Pettengell & Clarke, Hitchin	23,564
Howard & Son, Clacton	22,508
*J. Cracknell, Ltd., Peterborough	21,929

(Subject to approval of M. of H.)

Canterbury.—Practical instruction centre for boys, for the T.C. City Surveyor:—

*N. Smith & Sons, Maidstone	£1,561

Cardiff.—Two-story block of buildings at Ely Lodge institution, for the B.G. Messrs. Willmott & Smith, architects, 4, Park-place:—

James & Stevens	£15,569	0	0
A. E. Smith	15,106	8	0
A. E. Hamilton	15,007	16	3
J. Gibson & Sons	14,896	0	0
F. Holcombe	14,657	0	0
F. J. Thomas	14,550	0	0
S. C. Taverner	13,950	6	2
Tucker Bros.	13,926	0	0
Knox & Wells	13,768	0	0
E. Turner and Sons	13,588	0	0
J. Woodworth	13,376	0	0
W. S. Thomas & Co.	13,172	5	3
Wm. Symonds & Sons	13,120	0	0
William Rowles	13,100	0	0
E. A. James & Co.	13,095	10	0
Watts & Gale	12,580	0	0
*J. E. Evans & Co.	12,698	0	0

(All of Cardiff.)

Chipping Norton.—10 cottages at Charlbury, for the R.D.C. Mr. A. T. Green, surveyor, "Pentewan," Enstone-road:—

Collett & Rogers, Abingdon	£5,750
W. G. King, Lechlade	4,849
T. Parsloe, Kingham	4,689
Bartlett Bros., Witney	4,680
A. Groves & Sons, Milton	4,650
A. S. de Vinny, Witney	4,577
G. Hunt & Sons, Shipston	£4,575
Griffin & Sons, Stonesfield	4,500
Davies & Lewis, Tredegar	4,449
Universal Construction Co., Ltd., Rickmansworth	4,210
Wastie Bros., Handborough	4,150
*Blake Bros., Didcot	4,000

Eastbourne.—Additions and alterations to the "Gazette" and "Herald" buildings. Mr. W. R. Hamblyn, architect, 51b, Seaside-road:—

Building—

*J. W. Woolnough, Ltd., Eastbourne	£3,375 0

Heating—

*Hopes' Heating and Lighting, Ltd., London	323 5

Gosport.—Alterations, etc., at R.F.A. Gun Park. Messrs. A. E. Cogswell & Sons, chartered architects, Prudential Buildings, Portsmouth. Quantities by the architects:—

S. Foley, Southsea	£1,445
John Lay & Co., Portsmouth	1,434
F. Corke & Co., Southsea	1,317
F. J. Privett, Southsea	1,295
J. Vaux, Ltd., Gosport	1,269
C. M. Dash & Sons, Gosport	1,248
Jno. Croad	1,245
E. & A. Sprigings, Portsmouth	1,178
*J. Hunt, Ltd., Gosport	1,169

Hemsworth.—Erection of church schools. Messrs. Joseph Berry & Sons, architects, 1, Market-walk, Huddersfield:—

Samuel Johnson & Son, Mirfield	£6,525	0	0
Platt & Featherstone, Ltd., Goole	5,850	0	0
F. Hollingworth & Sons, Cumberworth	5,844	3	10
John Stothard, Cudworth, nr. Barnsley	5,667	7	0
Swift Bros. & Haslam, Ltd., Doncaster	5,605	0	0
Walter Dunk & Sons, Barnsley	5,600	0	0
J. S. Bramley, East Ardsley	5,525	0	0
A. Gregory & Sons, Castleford	5,500	0	0
C. D. Potter & Sons, Barnsley	5,499	10	0
J. W. Waller, South Elmsall	5,495	17	1
Drake & Warters, Wakefield	5,488	5	9
Barber & Heseltine, Pontefract	5,468	10	0
James Horkin & Sons, Liversedge	5,449	0	0
Fred Tree, Ferrybridge	5,393	10	0
Edward Oakland & Co., Ltd., Barnsley	5,288	9	4
Ernest V. Fox, South Elmsall	5,212	0	0
William Birch & Sons, York	5,210	0	0
H. Roper, Ltd., Castleford	5,187	0	7½
T. Jenkinson & Sons, Ltd., Doncaster	5,128	17	3
W. Horner & Sons, Pontefract	£5,118	4	6
Samuel Atkinson, Ltd., Wakefield	5,008	0	0
*Wm. Hanley & Sons, Hemsworth	5,000	10	0

Henley-on-Thames.—8 cottages at Playhatch, Eye and Dunsden, for the R.D.C. Mr. E. V. Ive, architect, Hillside, Vicarage-road:—

*A. Janes, Sonning Common, nr. Reading.

(Subject to the approval of the M.H.)

Huddersfield.—Interior decorations of the Borough Police Station, for the Corporation. Borough Architect, 26, Ramsden-street. Quantities by Borough Architect:—

*Wm. Littlewood & Sons, Huddersfield.

Hull.—Piling and concrete foundations, in connection with erection of proposed Carlton Theatre, Anlaby-road. Messrs. Blackmore, Sykes & Co., architects, Ruskin-chambers, Scale-lane:—

Kettlewell, Son & Co., Ltd.	£4,000	0	0
Sangwin, Ltd.	3,978	11	3
F. W. Plaxton, Scarborough	3,941	0	0
Wm. Birch & Sons, Ltd.	3,860	0	0
F. Hall & Sons	3,692	0	0
H. Kelly, Ltd., Newcastle	3,685	0	0
T. Borrill	3,684	17	9
A. J. Darneley & Son, Ltd.	3,550	0	0
Freeman	3,478	11	6
Con Greenwood & Sons, Ltd.	3,476	6	0
Geo. Curtis	3,474	4	3
H. Langton & Sons, Ltd.	3,461	11	3
Robinson & Sawdon	3,429	18	0
Geo. Houlton & Son	3,420	0	0
R. G. Tarran	3,400	6	3
I. Robinson	3,398	8	2
*Holliday & Barker	3,389	4	6

(All of Hull.)

Hull.—Builders' and ferro-concrete work in connection with the boiler-house extension at the Electricity Works, Sculcoates-lane, for the Corporation. Mr. T. Thomas, City Engineer:—

*A. E. Jones (Hull), Ltd., Hull	£6,116

Leeds.—New depot in New York-road, for the T.C.:—

Steelwork—

*S. Butler & Co., Ltd.	£6,653

All Trades—

*J. H. Wood & Co., Ltd.	44,193

Leeds.—Alterations at Cookridge-street baths in connection with the "Sun Ray" department, for the T.C.:—

*Pickard & Co.	£267

Leeds.—Tenders accepted by T.C. for various work at (*a*) Union-street baths, and (*b*) Municipal buildings, and (*c*) Town Hall:—

City Engineer	(*a*)	£378	15	0
Myers & Beckett	(*b*)	269	10	0
	(*c*)	146	6	6

Liverpool.—Steel-framed roofing for storage shed at Pumpfields sub-station, Vauxhall-road, for the T.C. Land Steward and Surveyor:—

*Lambourne & Co., Ltd., Manchester.	

Liverpool.—External painting and sundry repairs at (1) Kensington-gardens, (2) Kirkdale Recreation ground, for the T.C. Land Steward and Surveyor:—

(1) *Crowther & Bailey, Liverpool.

(2) *C. & G. L. Desoer, Ltd., Liverpool.

Menstrie.—New bakery, for the Co-operative Society, Ltd. Messrs. D. Forbes, Smith & Johnston, architects, 244, High-street, Kirkcaldy:—

Mason—

*Anderson & Askew, Dunfermline	£365 13 8

Joiner—

*J. Dickson, Alva	176 9 7

Slater—

*J. Rennie, Menstrie	108 1 8

Plasterer—

*J. Rennie, Menstrie	100 16 5

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*Ogden & McGregor, Preston.

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*W. Shepherd & Sons, Rochdale.

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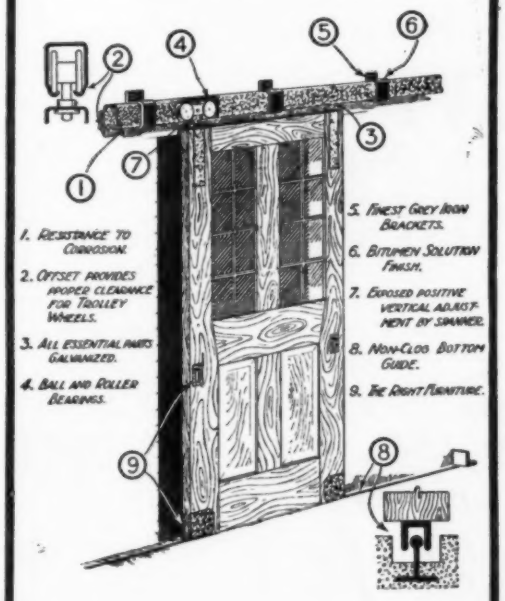
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*P. H. Moss, Pilning, Bristol 1,232

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E. Sherriff, Rearsby	£18,242	5	4
A. E. Cox & Co., Leicester	17,911	10	4
Ball, Sons & Squires, Barrow-on-Soar	17,600	0	0
A. E. Robinson, Leicester	17,598	17	2
G. Calverley & Sons, Leicester	17,139	19	0
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W. Potter, Narborough	16,850	0	0
A. Faulks, Loughborough	16,500	0	0
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F. Hill & Son, Thurmaston ...	16,250	0	0
T. W. Bilson, Leicester	16,245	0	0
E. Fox & Co., Leicester	16,200	0	0
T. Denman, Melton Mowbray	16,200	0	0
Browning Bros., Humberstone	16,054	6	8
H. Fox & Co., Leicester	16,015	0	0
S. A. Potter, Leicester	16,000	0	0
J. Jelley & Son, Leicester	15,994	0	0
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Greaves Bros., Hinckley	15,550	0	0
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	Houses.	Roads & sewers.	Drainage, paths & fencing.
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A. S. Morgan, Abingdon	33,862	1,049	630
C. Oakley, Abingdon	31,888	2,203	1,067
Andersons (Chesterfield), Ltd., 199, Piccadilly	31,188	1,995	1,353
W. Jor Sons, Ltd., Wes r	31,520	1,825	Included
Hoskings Bros., Newbury	29,939	1,612	1,140
J. H. Thompson & Sons, Grimsby	32,152	——	Included
Blake Bros., Didcot ...	29,815	1,590	1,145
Arthur Cole, Ltd., Luton	29,390	——	——
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